Joint Waste Development Plan Document

Halton Council, Knowsley Council, Liverpool City Council, Sefton Council, St Helens Council and Wirral Council

Needs Assessment (Publication Stage)
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Contents

0. INTRODUCTION

This is the fifth assessment of waste arisings, management capacity needs and site requirements for Merseyside and Halton. **It provides a final statement of evidence on forecast waste arisings, and how controlled wastes are expected to be managed in the sub-region over the period 2010-2027. These details provide a forecast of the number of site allocations which the Waste DPD takes forward and of the type of facilities they must be capable of supporting**.

This report provides a summary of the key elements of the needs assessment evidence base as they now stand. The report on the previous assessment and its appendices can still be read online or downloaded from the Waste DPD consultation portal and remain a core part of the audit trail for this key part of the evidence base.

The previous assessment was completed in late November 2009. Subsequently there have been new planning permissions which add to local capacity; new out-turn and survey data for the local authority-collected, commercial and industrial waste streams have been released; the regional planning tier and its policies and apportionments have been withdrawn; Defra has consulted on issues including the definition of what was formerly referred to as municipal waste and the possibility of a complete landfill ban on certain materials; and the new government has adjusted some priorities for the future direction of the waste sector. These factors necessitate this final revision before the Publication draft of the Waste DPD is presented.

However this is now an extremely complex process that is fraught with uncertainty due to:

- continuing legislative and other change which have the scope to profoundly change waste management options in the way the landfill tax accelerator has done since 2006;
- the quality of waste data has improved in the last five years but some problems persists which means we have imperfect knowledge of how the quantity of arisings and how they are managed for certain waste streams;
- uncertainty about the future availability of landfill capacity as many of the North West's largest sites are near the end of their permit periods and there is no guarantee that extensions will be granted;
- the limited scope of the planning system to influence the activities and priorities of the merchant waste sector which accounts for the majority of waste management functions in Merseyside, Halton, and the rest of the North West.
- effects of sustainable consumption and production initiatives which will start to have increased effect in the first 5 years of the Waste DPD;
- effects of recession on business output and household budgets, in terms of their immediate effect on waste arisings; uncertainty about when a recovery might begin; and the effect this will have on waste arisings;
- effects of recession on the ability of waste companies to secure the investment needed to build new treatment and recycling facilities, and its effect on the phasing of delivery of this capacity;

One consequence of the collective effect of these changes is that it now makes little sense to project forward the recent historic growth trend for each stream. For example, Local Authority Collected Waste (LACW) arisings have generally grown over the last 50 years, albeit at a declining rate, but over the last 3-4 years we have begun to see signs of a fall as waste reduction initiatives start to bear fruit.

Given this uncertainty, and rather than pin our hopes on a getting single 'best estimate' forecast trend for growth in arisings in each waste stream, this final needs assessment predicts an 'envelope' of waste management needs. For each of the four principal streams we identify:

- An upper bound forecast (referred to as '*pessimistic*') which assumes the maximum realistic growth rate we might expect for each stream;
- A lower bound ('*optimistic*') forecast which assumes a lower, but also realistic change in arisings (in most cases this is a modest reduction over the next 5 years); with all recently consented facilities entering service in line with current information about the phasing of delivery of new capacity; and assuming higher but not over-ambitious rates of recycling and landfill diversion

The upper bound is described as the '*pessimistic*' forecast because it represents a greater waste planning challenge. The lower bound is described as the '*optimistic*' forecast, being aspirational in that it reflects what the Strategic Objectives in the Waste DPD aim to deliver.

This approach has been adopted in response to comments made by the Planning Advisory Service and Planning Inspectorate who have advised that there should be evidence that the Waste DPD can be flexible and has the scope to accommodate unforeseen changes. The '*optimistic*' forecast therefore represents the desirable outcome of implementing the Waste DPD, while the '*pessimistic*' forecast represents a "Plan B" that identifies what might have to be delivered if things do no go according to plan.

The approach is also applied to other key assumptions. The '*pessimistic*' forecast assumes limited further improvement in diversion rates, so that it also models a future in which there is continuing pressure on the one waste management resource that Merseyside & Halton lacks: non-inert non-hazardous landfill capacity. It also assumes a delay of 1-2 years in bringing into service any treatment and recycling facilities that have planning permission but which are not yet under construction. In contrast, the 'optimistic' forecast assumes these facilities will materialize on time (based on information provided by their developers) and this enables higher diversion rates to be achieved sooner.

The currency of the data which this assessment draws on can be summarized as follows:

- *Local Authority-Collected* – data for 2009/10 as released by Defra in November 2010
- *Commercial & Industrial* – results of a second North West regional survey commissioned by the Environment Agency to assess arisings and management methods in 2009 (the results of the survey were reported in February 2010)
- *Construction, Demolition & Excavation* – results of the North West regional survey commissioned by the North West Regional Assembly to assess and management methods in 2006. The data used in this report reflect Merseyside EAS's earlier forecasts for growth in this stream which has been informed by meetings with representatives of several of the sub-region's principal waste contractors
- *Hazardous* – data for 2009 as released by the Environment Agency in its Hazardous Waste Interrogator tool.

This final version of the needs assessment therefore takes 2010 as the base year for forecasts and is based on the most recent data in all cases.

The needs assessment draws on more than 30 assumption sets about how the methods for managing the principal waste streams will evolve, as well as further assumptions about how fast (or whether) the principal waste streams will change over the plan period. Collectively, these assumptions have been established and corroborated in the following ways:

- Review of econometric forecasts published by The Mersey Partnership and the North West Development Agency estimating growth in population, households, output (GVA) and employment over the period to at least 2020 (in some cases longer), with the most recent report (published in January 2011) reviewing the impact of public spending cuts on the North West economy;
- Additional, detailed analyses of the compositions of the principal waste streams based on data supplied by Merseyside Waste Disposal Authority (MWDA) (for LACW), and by 4NW and the Environment Agency which commissioned the 2006 and 2009 regional surveys of Commercial and Industrial (C&I) wastes. Information on the composition of the managed hazardous waste stream was based on data in the Hazardous Data Interrogator referred to previously;
- Prospects for future priorities and targets for managing MSW are based on the existing Joint Municipal Waste Management Strategy; on information about the 2010/2011 review and revision of that Strategy (Merseyside EAS is represented on the Steering Group); from other material supplied either by MWDA or available from interrogation of Defra's WasteDataFlow resource; and have been checked with MWDA officers prior to publication;
- Peer review of all the principal assumption sets used in the previous assessment by an experienced, independent waste management consultant who has previously advised the NWRA and 4NW on matters relating to regional waste management strategy and practices;
- A further series of meetings arranged by Merseyside EAS with several of the principal waste contractors active in Merseyside & Halton, and the wider region, to substantiate assumptions about future growth in non-hazardous wastes created by businesses and construction activity and how levels of recycling and landfill diversion were likely to change over the plan period;
- A short series of special meetings with industry representatives held in March/April 2009, and again in February 2011 which aimed to substantiate other assumptions about future growth and management methods, with specific reference to landfill. The last of these meetings fed back the proposed position based on the meetings referred to in the previous point to ensure this final needs assessment reflects current opinion of the sub-regional waste management sector.

However it has not been possible to substantiate every assumption, and some them remain simplistic by necessity. Such instances are identified in this report so that the approach to forecasting waste management needs is as transparent as possible.

One final, key assumption is the approach taken to assessing capacity. Merseyside EAS has taken the position that any management capacity that has received planning consent is included in the assessment, even where work has yet to start on building the facility. In the analyses that follow this is referred to as 'pipeline' capacity. However this assumption is adjusted in two ways:

- In addition to the industry contact referred to above, Merseyside EAS has arranged periodic meetings with the developers which hold planning consents for new facilities to ensure it keeps abreast of the phasing of delivery of this capacity;
- Where the consent-holder already has contracts in place (or at an advance stage of negotiation) to manage wastes from outside Merseyside & Halton (eg. the Ineos Chlor facility at Runcorn) the long-term capacity available is reduced proportionally in the needs assessment model.

Chapters 1-4 of this report summarise the assumptions and approach to forecasting arisings for the principal controlled waste streams. They also identify the amount of waste management capacity that is already in operation, or which has received consent but is not yet built. Chapter 5 provides a series of brief statements about how the Waste DPD has dealt with other controlled wastes.

Chapter 6 begins with an overview of the principal assumptions before documenting the results of the needs assessment in terms of the capacity gaps and site requirements that have been identified for built facilities and disposal to land.

All numbers shown in tables and figures are expressed in thousands of tonnes unless otherwise indicated.

Appendix A identifies the principal reference sources that have informed the current and previous needs assessment work. Appendices B and C document the detailed forecasts for the Optimistic and Pessimistic scenarios respectively.

1. LOCAL AUTHORITY COLLECTED WASTE

1.1 HOW DO WE MANAGE LOCAL AUTHORITY COLLECTED WASTE & HOW WILL IT CHANGE?

	What is the current position?	*How do we assume it will change?*	*Basis of assumption*
Composition of the waste stream	Household waste represents 93% of arisings (based on the most recent 2009/10 outturn figure of 836,000 tonnes). This means the household share is slightly higher than in previous years (90%) and higher than the national average of 88%	Assume the recent out-turn figure is an anomaly and retain the 90%:10% ratio for simplicity	The reason for the recent fall in non-household waste is unclear, whereas the level remained steady at around 10% for a number of years. The introduction of the class of LACW is likely to see some increase in the quantity of trade waste that is counted and at the least it is prudent to assume the 90%:10% ratio will be maintained, though it is hard to judge whether the non-household share will increase further
	>60% of the stream is recyclable/compostable material including paper (19%), food (17%), green waste (10%) and plastics (9%); while a further 16% comprises other recyclable material that is not currently collected from the kerbside	No change assumed	Comparison of 2006 and 2009 MWDA surveys suggest no significant shift in the mix. Waste minimization initiatives will affect the quantity of some materials (eg. reduced glass) but the effect cannot be predicted with certainty
Recycling and composting LACW	35% of household waste is currently being recycled or composted. This is consistent with the current JMWMS but 5% below the target in the national waste strategy	The current revision of the JMWMS will adopt the national recycling/composting target of 50%	Authorities must base their strategy on reaching the national target otherwise they will be found to be non-compliant and risk being fined. The needs assessment assumes that the review of the national waste strategy will not impose a higher target of 55% given (a) the likelihood that there will be thermal treatment facilities to handle the remaining diverted waste; (b) that there is no corresponding change to the target specified in the EU Waste Framework Directive (WFD); and (c) given the growing importance of Energy from Waste as an adjunct of national policy on energy security and renewables
Managing food wastes	Trials of food waste collections began in several districts in 2009/2010 but they are limited in extent and are currently based on contracts negotiated by individual authorities	The push for better diversion performance will drive deployment of full service throughout each district in the period 2013-2015 and provision of central composting facilities for all authorities by MWDA and its PFI partner. All domestic food wastes will be diverted by 2020	It is not clear that Merseyside and Halton can meet the 2020 recycling target unless most food waste can be diverted. Government promotion of AD will help a 'push' towards food collections as is the possibility of a landfill ban on these materials in the longer term

	What is the current position?	*How do we assume it will change?*	*Basis of assumption*
Managing residual LACW	Residual LACW is sent by road to WRG's Arpley landfill in Warrington under a contract which lasts until 2015. Arpley is scheduled to close in 2013 although WRG is applying for a significant time extension. MWDA has already purchased additional landfill credits to supplement its LATS allowances in 2011 and 2012	If WRG does not secure an extension to its Arpley site it is assumed it will find alternative disposal sites to service its contract with MWDA. From 2015, residual waste will start to be diverted to new EfW infrastructure, with the total forecast quantity being diverted by the end of 2016. As this infrastructure will be secured by long-term contract it is counted as local capacity even though it will not be located in Merseyside and Halton	In September 2010 MWDA announced its PFI procurement would result in residual MSW being sent to an EfW facility in Cheshire West or Teeside. It has indicated that the capacity may come on-stream in 2014/15 subject to completion of the tendering process. Needs assessment assumptions are recognized as conservative given the increasing cost of landfilling non-inert waste
Role of HWRCs	24% of LACW is collected at HWRCs, having fallen from 35% over the last decade. The amount left at bring sites has remained steady at around 2%. The rest (residual + recyclables) is collected from the kerbside	The quantity of material collected by this route will fall to 25% (23% via HWRCs) by 2020 because further improvement in recycling and composting performance is expected to be delivered via the kerbside. This does mean less waste will go to HWRCs but that any increase in the quantity of recycled material will be taken from the kerbside instead[1].	The assumed rate of reduction mimics the focus (driven by the JMWMS) on recycling at the kerbside including introduction of food waste collections. The needs assessment assumes MWDA and its PFI partner will continue to operate an HWRC network intended to provide a facility within 3km of all residential areas though the quantity of material passing through these sites will not increase

1.2 HOW MUCH WASTE WILL WE HAVE TO MANAGE?

Over the past decade the annual growth rate in LACW arisings has dwindled steadily:

- 2000-2004/5: 3% at the start of the decade falling to around 1.5% by the end of this period;
- 2005/6-2008/9: 2 cycles of a small increase (typically ca. 1%) followed by a fall of 1.5%-2%;
- 2009/10: a 4% drop which is more significant because it is the first time that arisings have fallen in consecutive years.

On the basis of the information available it is not possible to identify how much of the recent fall has resulted from waste minimization initiatives, though it is more likely to reflect decreased household spending as a result of the recession. Fluctuation in arisings in the recent past suggest it is not appropriate to project straight line growth. Moreover the recent fall in arisings in successive years suggests that the needs assessment must consider something that has not been previously used in formal LACW forecasts, namely a decline in arisings.

The forecast envelope for LACW is shown in Figure 1.1 and is based on the two solid-line trends for the upper bound ('pessimistic' - solid blue) and lower bound ('optimistic' - red). The other trends shows the current JMWMS assumption (dashed green line), which was included in the previous needs assessment but which is included here for illustration only.

[1] Note that this assumption does not take account of the effects of charging for green waste collection (which would reduce the kerbside share), which is being considered as one option in the review of the Merseyside JMWMS.

Figure 1.1: local authority collected waste growth [Source: Merseyside EAS]

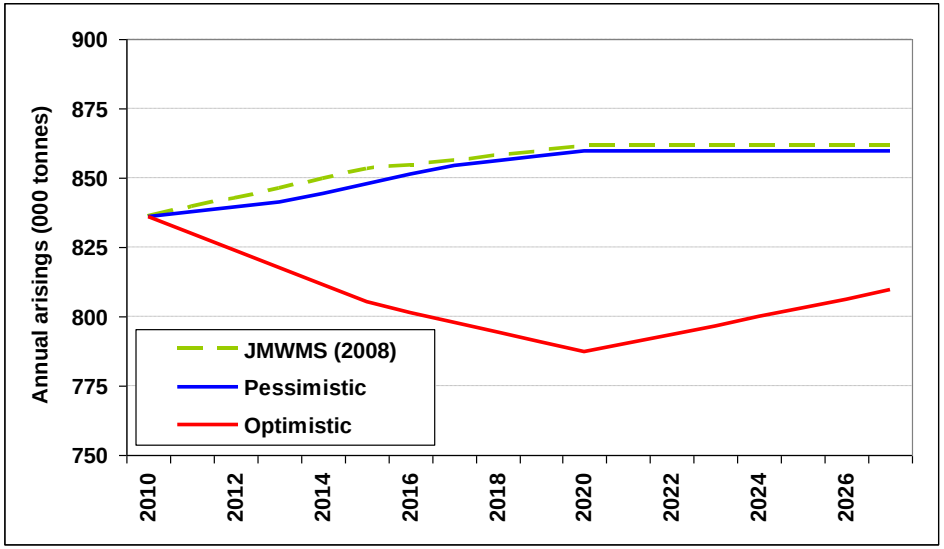


Table 1.1: Comparison of forecast local authority collected waste arisings under different growth scenarios [Source: Merseyside EAS]

SCENARIO	2010	2015	2020	2025	2030	Change
Previous assessment	873	886	901	904	904	-
PESSIMISTIC ("short rec'n")	836	848	860	860	860	-5%
OPTIMISTIC ("waste reduc'n")	836	805	787	803	819	-10%
Current JMWMS (not used)	836	853	861	861	861	-5%

All figures are in thousands of tonnes. The previous assessment forecast is not plotted in Figure 1.1. All other scenarios are affected by the drop in the out-turn figure for 2009/2010 from 873,000te to 836,000te which has a corresponding effect on the long-term arisings.

The final column in Table 1.1 shows the change compared to the previous assessment.

The upper bound (blue line) forecast is adapted from the growth rates stated in the current JMWMS for Merseyside and Halton. These were published in early 2008 and therefore do not take account of the effect of the recession. The 'short recession' forecast assumes growth in arisings at half the rate assumed by the JMWMS to 2015[2] as a proxy for limited recessionary effects, and then an acceleration as household spending recovers so that arisings are virtually identical to the JMWMS assumption by 2020, with no further change thereafter.

The lower bound (red) is derived from a forecast scenario developed by the North West RTAB which would have been used to derive LACW apportionments for the revised and unified Regional Strategy ('RS2010') had it not been abolished. It acknowledges that the region has the second highest levels of residual waste per household and per capita (BVPI84a) in England and correspondingly higher levels of collected waste, both of which place an onus on the region's waste authorities to implement waste reduction measures designed to reduce the gap. It assumes that these measures would be delivered primarily, but not exclusively, through the respective MWMSs.

The forecast is based on assuming the estimated level of collected waste/household in Merseyside & Halton at 2010 falls to the corresponding national average (for England) by 2020. Thereafter the figure remains constant. However the forecast is adjusted to take account of extra waste generated by new households created over the plan period. Household growth is assumed to be driven by corresponding growth in new houses, and is based on targets specified in RS2010 which are supplemented by those that should be delivered by successful housing growth point bids submitted by Liverpool / Wirral and St Helens / Halton / Warrington. The latter is adjusted to remove an apportionment for Warrington.

[2] Merseyside and Halton Waste Partnership (2008), Joint Municipal Waste Management Strategy, Supplementary Report 3: Data & Projections, Table 3.7.

Table 1.1 shows that this means a difference between the two bounds which is at its greatest at 2020 (88,000 tonnes) but the gap closes to around 50,000 tonnes by the end of the plan period in 2027. Figures 1.2 and 1.3 show the effect of the assumptions on the management mix and the quantities which will move to recycling, treatment and landfill over the plan period for the two forecast bounds. (In each forecast year there is a total of around 5000 tonnes of hazardous LACW, typically comprising batteries, solvents and similar materials.)

Figure 1.2: LACW management mix – lower bound "optimistic" forecast [Source: Merseyside EAS]

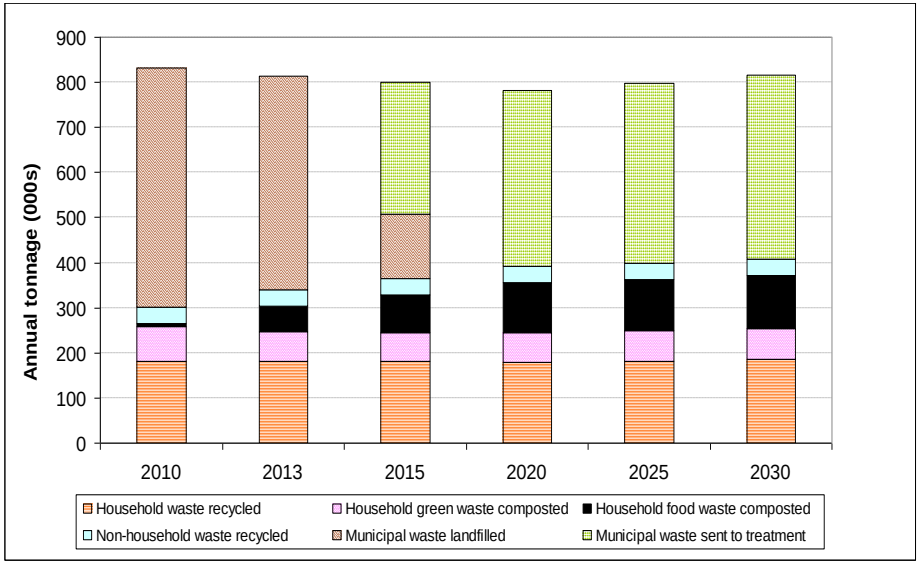
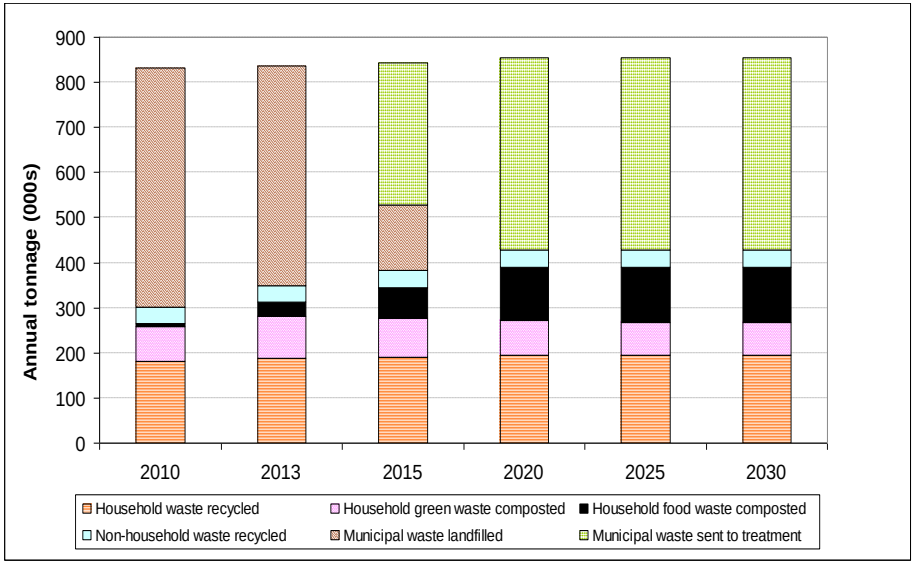


Figure 1.3: LACW management mix – upper bound "pessimistic" forecast [Source: Merseyside EAS]



1.3 HOW MUCH CAPACITY FOR MANAGING LOCAL AUTHORITY COLLECTED WASTE DO WE HAVE?

The table below (and corresponding tables for other waste streams) details the capacity that is in service already. Merseyside EAS also counts any capacity available at facilities that had planning consent by the end of 2010, but which are not yet in service. The needs assessment includes a sensitivity test which assesses capacity need if none of these facilities come forward. Note that the figures shown refer in all cases to the total consented annual throughput, though most sites do not operate at 100% capacity.

Type of facility	Operational and 'pipeline' capacity	Additional capacity anticipated and other clarification
Receiving, sorting and bulking waste		
Household waste recycling centres	240,000te (16 sites)	None. Merseyside and Halton's WDAs are currently reviewing the need to replace some sites which are now too small for the level of use they experience. An additional HWRC will be provided in Liverpool but this is not counted as it is not known when the facility will be in service or where it will be situated and Halton WDA has identified the need for a replacement site to serve Runcorn

Type of facility	Operational and 'pipeline' capacity	Additional capacity anticipated and other clarification
Municipal waste transfer station	1,150,000te (4 sites)	None, and it is expected the sites will continue to be used to bulk waste for onward dispatch to the PFI facilities and to landfill (however, see also comment in section 6.3(b))
Materials recycling facility	100,000te operational	A further 100,000te will be provided by a new facility at Gillmoss, Liverpool, which is assumed to come into service by 2012
Sources: Environment Agency listing of sites with waste management licences or environmental permits; information from liaison meetings with MWDA		
Recycling, composting and reprocessing waste		
Open windrow composting	127,000te (5 sites)	All sites operate on a merchant basis accepting household and household green waste. The sites in northern Sefton, northern St Helens and Halton are close to adjacent authorities and are therefore likely to take some green waste from outside the sub-region, though the quantity is not known. An application for a further 5,000te facility on the Wirral has been consented[3]
Enclosed composting (AD / IVC)	None	A 15,000te IVC plant at Bidston has been mothballed for the last 2 years and its fate is unclear. Permission for a second facility on MWDA's Gillmoss site expired towards the end of 2009. See also comments in the corresponding section of the table for commercial and industrial wastes
Reprocessing facilities	>940,000te (ca. 24 sites)	A third of the facilities are recycling plastics, but there are also facilities handling glass, WEEE, plasterboard, paper and metals which receive materials from HWRCs and MRFs. However some wastes are exported to reprocessors, notably non-ferrous metals to a major facility in Warrington
Sources: Environment Agency listing of sites with waste management licences or environmental permits; information from liaison meetings with MWDA		
Treating waste		
Primary (pre-) treatment	Some small, private and specialized plants	Orchid Environmental's Mechanical Heat Treatment facility in Huyton has taken previously taken municipal waste but more recently accepted C&I waste primarily. The site closed in Summer 2011.
Secondary (thermal) treatment	None	MWDA has announced it intends to export residual LACW to a merchant treatment facility operated by its PFI partner which will be outside the sub-region. The partner is scheduled to be announced in 2012 and will deliver one of the following facilities: • Covanta Energy is building a 600,00te RDF-fuelled EfW facility at Ince Marshes, Cheshire West and Chester, in partnership with Peel Energy. Due to its scale it will command at least a regional catchment and may treat LACW and C&I wastes • SITA, in partnership with Sembcorp, is building an EfW facility at Wilton, Teeside which will be used to treat residual MSW from Merseyside if SITA wins the PFI contract[4] Although neither facility is in Merseyside and Halton the needs assessment co-opts the capacity as it will be secured by long-term contract and availability is therefore guaranteed. MWDA has announced it expects the chosen facility will be in service by during 2015 and that it will take 50% of the residual waste to be diverted in that year, rising to 100% in 2016

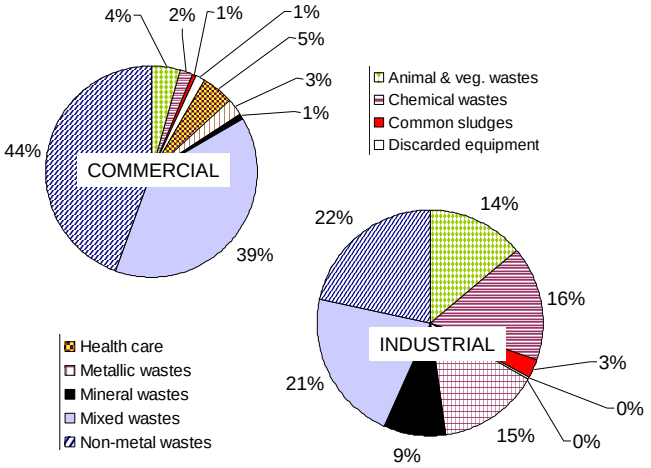
[3] The previous needs assessment included the 65,000te Whitemoss composting facility to the north-east of Kirkby. The site straddles the boundary between Merseyside and West Lancashire and was included in a list of Merseyside sites with waste management licences supplied by the Environment Agency in January 2009. The most recent list supplied in July 2010 excludes this facility and therefore its capacity has been removed to prevent the risk of future double-counting when Lancashire reviews its Waste DPD.

Type of facility	Operational and 'pipeline' capacity	Additional capacity anticipated and other clarification
Disposing of waste		
Non-inert landfill	Nominally 425,000te (1 site) within to 500,000te available in an adjacent authority and secured by contract until 2015	A single site exists at Haydock operated by Cory Environmental though around two thirds of the material deposited is C&I or CD&E waste; whereas LACW deposited there originates outside the sub-region. The site is scheduled to close in Summer 2012, however recent documents show that a void of more than 750,000m^3 is expected to remain by then and the operator is therefore expected to apply for a time extension. As the continued operation of the site cannot be substantiated, the Waste DPD assumes no further capacity can be provided after Summer 2012. MWDA has a contract with WRG Ltd to export residual MSW to Arpley landfill in Warrington. That site is scheduled to close in 2013 although the operator is submitting an application to continue filling until 2025. Some capacity at Arpley is counted by the needs assessment as "local" capacity because it is secured through a medium-term contract and therefore its availability is guaranteed. However the quantity assumed is only that which is needed to receive Merseyside's waste until 2015 and not the capacity of the entire landfill site. If the application above is unsuccessful the needs assessment assumes WRG will exploit capacity in other landfills in the region in order to fulfil its contract with MWDA until 2015, Thereafter, any continued export of residual LACW is identified by the needs assessment but it is assumed to require capacity at an unidentified location.
Inert landfill	Sites accepting inert wastes are assumed to also serve domestic and business customers (although the latter is assumed to predominate) because the definition of "inert" adopted by the EU Waste Framework Directive include only material that is physically, chemically and/or biologically inert. For example, waste soil containing plant matter, humus, etc. is not biologically inert and have to be sent to a non-inert landfill. The available capacity is summarized in the section on CD&E waste.	
Sources: Environment Agency listing of sites with waste management licences or environmental permits; information from liaison meetings with MWDA; liaison meetings with operators of the consented facilities (Spring 2009 onwards); press releases and reports of the respective operators		

2. COMMERCIAL & INDUSTRIAL WASTE

Growth trends for these two streams are very different, with commercial wastes having increased over the last 10 years while industrial wastes declining over the same period. Therefore arisings are forecast separately in section 2.1 below. However, in spite of some differences in the composition of the streams much of the material is capable of being managed together (technically and contractually) by the waste industry and therefore they are discussed together in the rest of this section.

2.1 HOW DO WE MANAGE C&I WASTE & HOW WILL IT CHANGE?

	What is the current position?	*How do we assume it will change?*	*Basis of assumption*
Composition of the waste stream		Minor changes to the distribution as packaging reduction and other waste minimization tactics reduce the quantities of mixed and non-metallic wastes	Data from 2009 survey of C&I waste in the North West. This indicates changes to both distributions, specifically a reduction in industrial chemical wastes and a reduction in commercial metal wastes. However, with only two data points it is not possible to be certain how the mix might change in the future. The 2009 survey drew on lessons learned from the earlier survey about sample size and data collection and is therefore likely to be more accurate. Nevertheless some further changes in the distribution are thought to be inevitable if difficult to predict

Note that in the charts above, "non-metal wastes" are primarily dry recyclables such as paper, card, glass, etc. which have been separated at source. A share of "0%" means some waste was produced but it represents <0.5% of the total stream.

Recycling and composting	The most recent regional survey shows performance improved from 41% in 2006 to 60% in 2009	Scope for further improvement in recycling performance is assumed to be limited. Both optimistic and pessimistic scenarios assume performance will not rise above 65%	Opinions obtained from the local waste industry suggest the recycling rates for both streams are already fairly mature and a large part of the residual material comprises contaminated mixed waste (eg. paper and plastics covered with food waste or part-soaked with fat). Even if the technology emerges to allow some degree of decontamination it is not clear that the resulting product will meet reprocessors' quality targets. This will discourage investment in new treatment facilities and therefore diversion to recovery will be the only feasible option

	What is the current position?	*How do we assume it will change?*	*Basis of assumption*
Managing food waste	The principal local facility is PDM at Widnes however this is a specialized plant handling hazardous animal wastes covered by the ABP Regulations. The facility has a consent for a further expansion to incinerate normal food wastes but this is not yet operational and will service contracts with national supermarket chains so it appears likely that little of the new capacity will be available to handle wastes arising in Merseyside & Halton. There are no other operational AD or IVC facilities at present although the consent for the New Earth Solutions facility at Widnes provides for some in-vessel capacity. The IVC facility which operated at Bidston MRF for a short period has been mothballed and its fate is currently unclear	It is assumed this composting will occur at the same pace as that for MSW	The moderately fast and complete diversion reflects growing promotion of AD by the government, as well as the attraction of revenues from ROCs. However the picture is complicated by uncertainty about how much of this material will remain unseparated and instead go to energy recovery facilities, while food processors and the larger supermarket facilities may invest in their own plant. The approach used is therefore a simplifying assumption
Managing residual waste	The 2009 regional survey shows only 1% of this stream was recovered in thermal treatment facilities. From this we must conclude that most of the installed "treatment" capacity performs what the needs assessment assumes to be a recycling function, perhaps by decontaminating or separating and purifying some materials (eg, chemical wastes). Consequently the landfill rate remains fairly high at 40%, with this material comprising inert treatment residues and mixed wastes unsuitable for recycling	The pessimistic scenario assumes 15% of waste will still go to landfill while the optimistic scenario assumes only 7%. Both scenarios assume the same rate of recycling (65%) therefore the remaining material will go to treatment plants	The lower landfill rate is based on a Merseyside EAS analysis of estimated recycling and recovery potential for residual C&I waste in the North West regional survey of 2009. The figure assumes that a quarter of all residual waste for which recovery is the only diversion option will still go to landfill. This is assumed because accepting the survey results as they stand implies almost complete diversion would occur. The 15% assumption is based on estimates from meetings with the local waste industry in early 2011. All these assumptions were presented to and agreed by local waste industry representatives at that time

2.2 HOW MUCH WASTE WILL WE HAVE TO MANAGE?

It is difficult to be certain about the recent historical trend in both waste streams because of the limited data that has been available from previous national surveys. This situation has been addressed in the North West by the two surveys in 2006 and 2009 which were commissioned by 4NW and the Environment Agency regional unit respectively. The methodology for the 2009 survey learned from some of the problems encountered in the previous one, and as a result it was based solely on face-to-face interviews and thorough checking and validation of results. This methodology has been subsequently adopted by Defra to produce a national forecast of both streams.

However the limited amount of recent historical data suggests the following indicative growth trends for the two streams persisted through much of the period 2000 to 2008:

- commercial wastes grew at a rate of between 1.5% and 2% per annum
- while industrial wastes fell at a rate of between -2% and -4%.

These trends are considered to reflect the continuing restructuring of the regional economy from one that was heavily dependent on heavy industry and manufacturing until well into the late 1980s, to one with a growing dominance of the service sector.

The most recent survey trends appeared to show the commercial wastes in Merseyside & Halton grew between 2006 and 2009 at a rate of +1.8% annually in spite of the onset of recession covering almost half of this period. The difference between the needs assessment forecast for 2009 (as a projection of the 2006 survey result) and the 2009 out-turn figure was an increase of 40,000 tonnes. By contrast, industrial wastes fell more than expected, probably exacerbated by recession, at a rate of -4.4% over the same period, resulting in a reduction in forecast arisings in 2010 of 52,000 tonnes.

Following discussion with the local waste management sector, Merseyside EAS has concluded that it cannot base forecast growth of commercial wastes on the apparent rate between 2006 and 2009. Indeed the response we received recommended two significant changes:

- Recovery from recession is unlikely to start before 2015 (this is consistent with the conclusions of a report by Cambridge Econometrics for The Mersey Partnership and supersedes the previous assumption that improvement would begin to appear in 2013);
- Both scenarios need to reflect the effect of extension of the Courtauld Agreement, the Producer Responsibility Regulations, and other initiatives to reduce waste creation rates, and the likelihood that arisings may fall over the next 10 years as they take effect.

Moreover it was already clear that a bullish forecast for post-recession recovery was implausible as a substantial proportion of "commercial" wastes are generated by the public sector, which is currently contracting as a result of massive spending cuts which are being strongly felt in Merseyside and Halton because of the high proportion of local employment in the sector. It was therefore concluded that the pessimistic forecast should predict limited growth in arisings but not on the scale assumed by the previous needs assessment or at the rate implied by the most recent regional survey results.

Figure 2.1: Commercial waste growth [Source: Merseyside EAS]

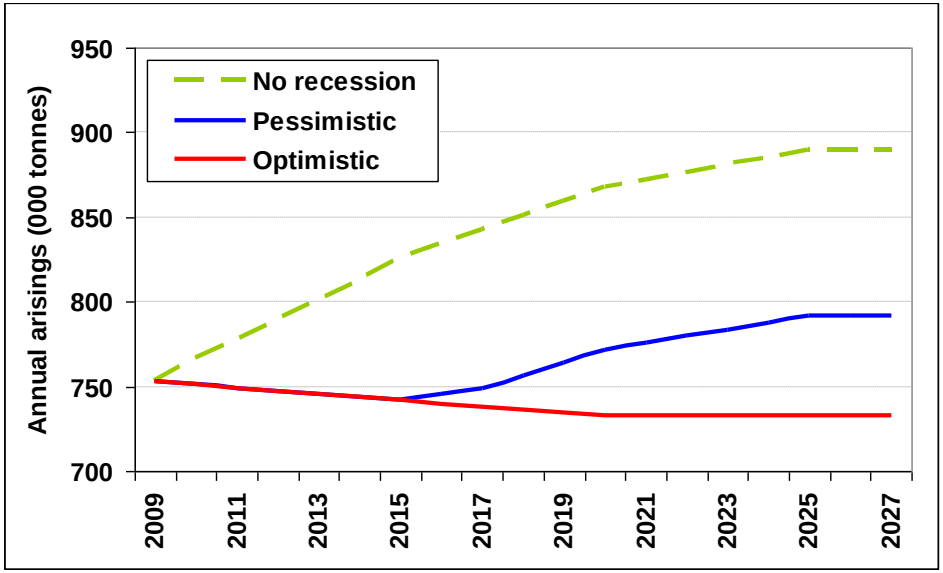


Table 2.1: Comparison of forecast arisings under different growth scenarios [Source: Merseyside EAS]

SCENARIO	***2010***	***2015***	***2020***	***2025***	***2030***	***Change***
Previous assessment	713	735	811	852	874	-
PESSIMISTIC ("rec'n/reb'd")	751	742	772	791	791	-10%
OPTIMISTIC ("waste red'n")	751	742	733	733	733	-16%
No recession (not used)	766	825	867	889	889	+2%

All figures are in thousands of tonnes. The previous assessment forecast is not plotted in Figure 2.1. All other scenarios are affected by the increase in the out-turn figure from 713,000te in 2006 to 753,000te for 2009 which has a corresponding effect on the long-term arisings.

The final column in Table 2.1 shows the change compared to the previous assessment.

Figure 2.1 compares the pessimistic (blue) and optimistic (red) forecasts, while Table 2.1 shows the corresponding quantities. The green trend line in Figure 2.1 shows the forecast if the 1.8% growth implied by the 2009 regional survey is projected forward in the short-term, with a gradual reduction until the end of the plan period. Contacts in the local waste industry considered it was unsupportable.

The 2009 survey results suggest a plausible reduction in industrial wastes which appears to perpetuate the trend seen in much of the preceding decade, but with the decline now driven by recession rather than re-structuring of the regional economy.

This revision takes the baseline forecast from the previous needs assessment as its '*optimistic*' assumption, assuming that recession will continue to drive down arisings, but at a lessening rate, with the decline bottoming out after 2013. This scenario might still be seen as conservative in that no account is taken of the possible effect of waste minimization impacts. However they are difficult to calibrate and therefore the more simplistic assumption is retained. Equally it is difficult to calibrate a plausible basis for the "pessimistic" scenario. The forecast envelope approach needs to deliver sufficient flexibility to take account of a reasonable level of variation in future arisings and changes to how wastes are managed. Merseyside EAS concluded it would be imprudent to also assume further reduction in industrial wastes in the 'pessimistic' assumption. Since an increase appears improbably given the recent historic trend, then the only remaining option is to same no further change to arisings. In effect this assumes that any further fall in arisings as a result of recession and other factors will be offset by some limited increase in industrial activity either at existing sites or as new industrial sectors are promoted as part of the economic plan for the Liverpool City Region.

Figure 2.2 and Table 2.2 compare the two forecast scenarios for industrial wastes and the corresponding quantities.

Figure 2.2: Industrial waste growth [Source: Merseyside EAS]

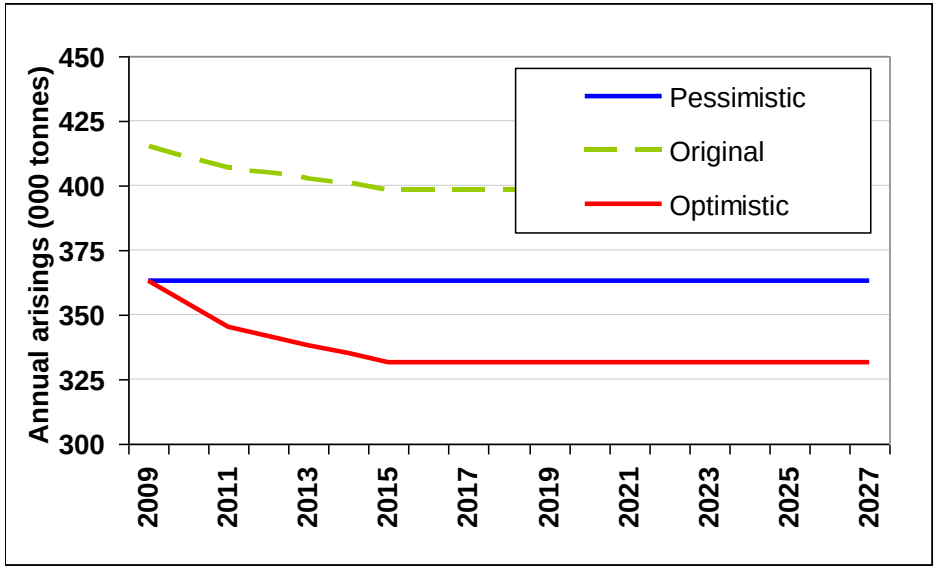


Table 2.2: Comparison of forecast arisings under different growth scenarios [Source: Merseyside EAS]

SCENARIO	2010	2015	2020	2025	2030	Chang
Previous assessment	415	398	398	398	398	-
PESSIMISTIC ("zero growth")	363	363	363	363	363	-9%
OPTIMISTIC ("short rec'n")	354	331	331	331	331	-17%

All figures are in thousands of tonnes. The pessimistic and optimistic scenarios are affected by the fall in the out-turn figure for 2009 as referred to in the main text, and which has a knock-on effect on long-term arisings.

The final column in Table 2.2 shows the change compared to the previous assessment.

The optimistic forecasts for both streams and the pessimistic forecast for industrial wastes could be seen as being consistent with the view expressed in the current national waste strategy that waste creation rates have been decoupled from economic growth[5] – whereas this is not he case for the pessimistic commercial waste forecast. Note, however, that a recent report to the EU on the current Thematic Strategy on Waste Prevention acknowledges that the evidence for economic decoupling is not proven[6].

2.3 HOW MUCH CAPACITY FOR MANAGING COMMERCIAL & INDUSTRIAL WASTE DO WE HAVE?

The table below details the capacity that is in service already. Merseyside EAS also counts any capacity available at facilities that had received planning consent by June 2010 but which are not yet in service. The needs assessment includes a sensitivity test which assesses capacity needed if none of these facilities come forward. In all cases the figures shown refer to the total consented annual throughput, though most sites do not operate at 100% capacity either because the total is not fully utilized or because downtime for maintenance means that the total can never be used.

Type of facility	Operational and 'pipeline' capacity	Additional capacity anticipated and other clarification
Receiving, sorting and bulking waste		
Material recycling facilities	140,000te	None. It is assumed that additional capacity can be provided by intensified use of the existing station sites, and by diversification of inert facilities into handling non-inert materials. Tendering for build a third MRF on a site currently handling inert wastes was under way at the time this assessment was finalised
Transfer stations	440,000te[7]	
Sources: Environment Agency listing of sites with waste management licences or environmental permits; Merseyside EAS estimates		
Recycling, composting and reprocessing waste		
Open windrow composting	(None)	The capacity assumption to the left is a simplification as open windrow composting capacity will be shared between commercial (ie. horticultural) and household use
Enclosed composting (AD / IVC)	50,000te	The figure to the left is the assumed capacity to be provided by New Earth Solution's facility at Widnes which will also provide MBT capacity as referred to in the table below. An initial (refused) planning application included a 100,000te facility, but the current consent is based on half the original total. It is unclear whether it will take only commercial waste or whether it might provide food waste composting services to municipal waste collection authorities and their contractors
Reprocessing sites	942,000te (ca. 24 sites)	Note that this is the same figure as stated for LACW and is not additional capacity
Sources: Environment Agency listing of sites with waste management licences or environmental permits		

[5] Defra, Waste Strategy for England 2007, London, May 2007, Annex C2, and specifically Chart C2.1.

[6] IEEP, Ecologic, et. al., Final Report – Supporting the Thematic Strategy on Waste Prevention and Recycling, Brussels, 25 October 2010, pp.29-31 and specifically Figure 5.1 (downloaded on 17 March 2011 from http://ec.europa.eu/environment/waste/pdf/Final%20Report%20final%2025%20Oct.pdf)

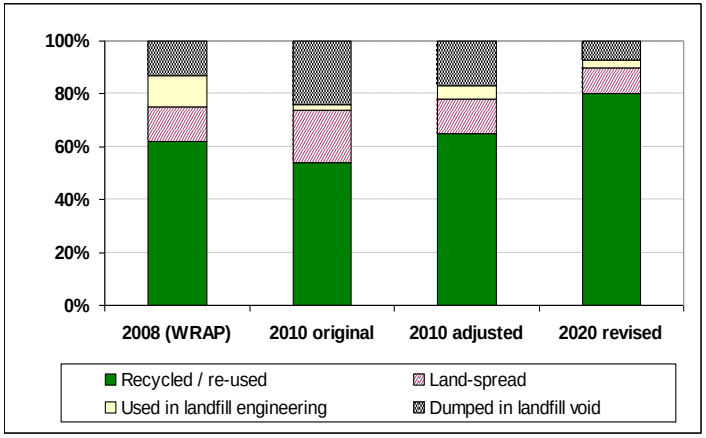
[7] This figure is a Merseyside EAS estimate based on reviewing promotional material (notably website details) to identify those operators of transfer stations who appeared to be managing wastes from commercial and industrial premises, rather than inert sites (primarily skip hire operators) which are assumed to handle only CD&E wastes.

<table>
<tr><th>Type of facility</th><th>Operational and 'pipeline' capacity</th><th>Additional capacity anticipated and other clarification</th></tr>
<tr><td colspan="3">Treating waste</td></tr>
<tr><td>Primary (pre-) treatment</td><td>Ca.50,000te operational at 1 site (with consent for a further phase adding 70,000te which is being rolled out at present)</td><td>The figure to the left is the Orchid plant at Huyton (see Section 1.2 also) which was operating at the time the needs assessment work was completed. In July 2011 the operator announced that the plant had shut and the effect of its closure has been included in a further, very late revision of this assessment. Two permissions have been granted since the last needs assessment was published:
Jack Allen Holdings – 150,000te autoclaving facility at Garston Dock, Liverpool, intended to produce RDF/SRF. Not expected to be in service before 2015;
New Earth Solutions – 150,000te MBT facility at Widnes Waterfront, Halton, also expected to produce RDF/SRF. Not expected to be in service before 2015.
The Bioosence facility at Eastham, Wirral is an integrated site that will accept treat residual waste in autoclaves to produce a floc to be burned in a co-located gasification facility as referred to below.</td></tr>
<tr><td>Secondary (thermal) treatment</td><td>750,000te at Ineos Chlor, Runcorn. Half is contracted to handle waste from Greater Manchester and from Cheshire (subject to final closure of PFI tendering). The capacity above will be provided in two even-sized phases that are scheduled to come on stream in late 2012 (Phase 1) and late 2013 (Phase 2)[8]</td><td>Consents exist for >1.5m tonnes (all with combined heat and power generation) comprising:<table><tr><td>PDM Group (Widnes, Halton)</td><td>150,000te of food processing waste – ie. a specialized facility with a national catchment. The assessment assumes only 10% of its capacity will be used to treat locally arising wastes</td><td>Originally planned for late 2010/early 2011 but delayed and now likely to be 2012 or possibly 2013</td></tr><tr><td>Energos (Kirkby, Knowsley)</td><td>80,000te of residual C&I some of which may originate outside the sub-region due to the location of the facility</td><td>Possibly during 2013</td></tr><tr><td>Biossence (Eastham, Wirral)</td><td>400,000te of waste pre-treated by a third party off-site. Some of the waste may originate outside the sub-region</td><td>Possibly during 2013</td></tr><tr><td>EMR/Chinook (Bootle, Sefton)</td><td>134,500te of automotive shredding residue of which 14,500te will come by rail from the West Midlands</td><td>Possibly during 2013</td></tr></table></td></tr>
<tr><td colspan="3">Sources: Environment Agency listing of sites with waste management licences or environmental permits; liaison meetings with operators of the consented facilities (Spring 2009 onwards); press releases and reports of the respective operators</td></tr>
<tr><td>Non-inert landfill</td><td rowspan="2">See details provided for LACW</td><td rowspan="2">See details provided for LACW</td></tr>
<tr><td>Inert landfill</td></tr>
</table>

[8] Residual waste normally shrinks by about 50% during pre-treatment (removal of recyclates and material with no calorific value, moisture losses, etc.) therefore this facility may require a supply of around 1.5m tonnes of waste though this also requires provision of the pre-treatment capacity by other operators. A distinction is made between Ineos Chlor and the other facilities because construction of the facility is already well-advanced, whereas groundwork had not yet begun on the other sites at the time this report was completed. For this reason the needs assessment takes a conservative position and assumes the capacity will not be available before 2015, although this may be unduly pessimistic.

3. CONSTRUCTION, DEMOLITION & EXCAVATION WASTE

3.1 HOW DO WE MANAGE CD&E WASTE & HOW WILL IT CHANGE?

	What is the current position?	*How do we assume it will change?*	*Basis of assumption*
Composition of the waste stream	The range of materials will typically (and generally) include: • Crushed concrete, bricks, asphalt and similar material • Other material from the building fabric*; • Recovered metal, glass and wood; • uPVC • Insulation materials* • Soils and stones*. Some of the materials marked '*' may be hazardous. The mix of materials will vary from site-to-site and will therefore change continually as new development or regeneration projects begin and others end	No change to the range of materials	Based on discussion with industry and reference to the WRAP report on the sector[9]. Industry comments suggest that there will be a reduction in the density of building materials reflecting initiatives that are in place today. Some reduction in density is being experienced already but this is mainly due to more intensive and efficient recycling on-site. The additional impact of using less dense materials may not be felt until later in the plan period when buildings erected in the last 10 years are being replaced
Recycling and recovery		The 2010 mix assumed in the previous assessment is shown in the 2nd column in the graph to the left. This has been adjusted to that shown in the 3rd column and the 2020 mix is shown in the 4th column. This assumes recycling on/off site will increase from 65% to 80%; use of land-spreading will fall to 10%; and use of material beneficially on landfill sites will fall to 3%	The 2010 mix has been adjusted based on the results of the WRAP survey (see 1st column in the graphic) and the comments of local industry representatives who considered it was more representative of current methods than the original assumption (2nd column). The 2020 is very similar to the original assumption and this too was endorsed by industry views. The use of land-spreading is assumed to fall after 2012 when new regulations limit the amount of material that can be deposited, and when deposits will attract landfill tax at inert rates. However it is assumed this will result in some substitution of exemptions by permitted sites so the reduction will not be too severe. The limited number of local landfill sites is assumed to depress demand for material for landfill engineering purposes

[9] Waste & Resources Action Programme, Construction, demolition and excavation waste arisings, use and disposal for England 2008, Banbury, April 2010.

	What is the current position?	*How do we assume it will change?*	*Basis of assumption*
Managing residual waste	There are difficulties identifying the amount of CD&E waste sent to landfill since some is used for engineering and capping (classified as a recovery operation by the Waste Framework Directive); while other material is used for daily cover; and there is evidence from site returns that an increasing amount is being deposited in voidspace in order to maintain fill rates and completion schedules (both are classified as disposal operations)	As indicated above (see "2010 adjusted" distribution on the figure on the previous page) 22% of waste is assumed to go to landfill with three quarters going as voidspace fill. This is assumed to fall to 12% by 2020 with a reduction in the amount going to fill	Reduction in landfill disposal towards the level assumed previously (10%) was endorsed by the local waste industry during discussions and this reflects the presumption that there will be further improvements in recycling performance and continuing demand for material to be used beneficially (in capping) or in further land spreading activities. Immediately before this assessment was finalized WRAP released new results suggesting the construction industry had made significant moves towards its use of landfill disposal of wastes which appears to substantiate the reduced share of this activity[10]

3.2 HOW MUCH WASTE WILL WE HAVE TO MANAGE?

Figure 3.1: CD&E waste growth [Source: Merseyside EAS]

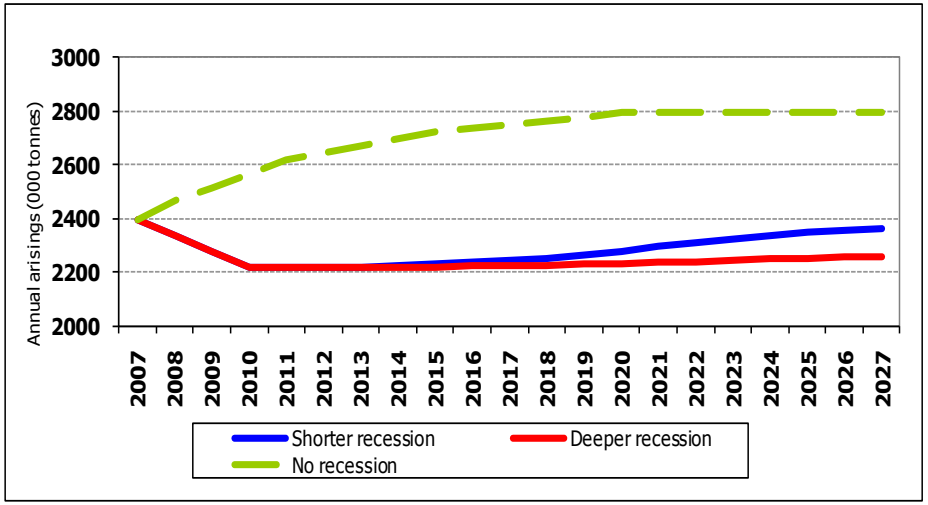


Table 3.1: Comparison of forecast arisings under different growth scenarios [Source: Merseyside EAS]

SCENARIO	***2010***	***2015***	***2020***	***2025***	***2030***	***Change***
Previous assessment	2253	2253	2428	2615	2681	-
PESSIMISTIC ("shorter rec'n")	2220	2233	2280	2336	2385	-12%
OPTIMISTIC ("deeper rec'n")	2220	2220	2231	2253	2270	-16%
No recession	2567	2724	2793	2793	2793	+4%

All figures are in thousands of tonnes. The previous assessment is not plotted, and the "no recession" scenario, which assumes continued growth at the pre-recession rate for a limited period, is included for illustration only

The final column in Table 3.1 shows the change compared to the previous assessment.

[10] Waste & Resources Action Programme, The Construction Commitments: Halving Waste To Landfill – Signatory Report 2011, Banbury, March 2011. This report reflects returns from 32 major companies active in the construction sector and reports a drop in landfill deposits of around 30% between 2008 and 2009. Assuming this figure to be generally representative, and if combined with the results of WRAP's 2008 survey (see previous footnote), it suggests the quantity of CD&E waste disposed to landfill had already fallen below 10% by 2010 and therefore the needs assessment assumption should be regarded as conservative.

Figure 3.1 shows the forecast envelope for the stream[11]. The limited spread of the two bounds reflects feedback that Merseyside EAS received from the local waste sector (although the small scale is deceptive as the different between the two forecasts at 2020 is 100,000te). There was a clear view that arisings are unlikely to exceed pre-recession levels for two reasons:

- The prolonged effect of cuts in public sector expenditure on major infrastructure and regeneration projects, including those directed at housing and schools renewal;
- The pre-recession levels were untypical, reflecting a spate of one-off local construction programmes, including the Liverpool One shopping centre and other developments linked to the city's year as the European Capital of Culture.

Notwithstanding these points, Merseyside EAS considers that the effect of major development proposals such as Wirral Waters, Liverpool Waters, and the second Mersey Crossing, cannot be ignored and will help to drive the level of arisings upwards in the longer term. However both of the dockland regeneration projects will have development timescales of 30-40 years due to their scale and phasing, and this is reflected in the assumption of a gentle increase.

Figure 3.1 therefore shows no increase in arisings until at least 2013, with a modest increase thereafter under the '*pessimistic*' scenario which reflects the start of additional private sector-funded projects. Furthermore it is important to recognize that the needs assessment does not assume cessation of construction activity, but that it will be at a lower intensity than that before the recession began.

Table 3.1 summarises the corresponding arisings figures. The final column shows the effect of taking a more conservative view of long-term growth prospects on future arisings, based on advice from local waste industry contacts, which results in a very significant drop in quantities. The forecast reflects this advice and that neither scenario assumes arisings will rise above the pre-recession level of around 2.4 million tonnes

3.3 HOW MUCH CAPACITY FOR MANAGING CONSTRUCTION WASTE DO WE HAVE?

Type of facility	**Operational and consented capacity**	**Additional comments**
Receiving, sorting, bulking and recycling waste		
Transfer stations	1,290,000te (at >60 facilities)[12]	At the time of this assessment Merseyside EAS was reviewing planning applications for 2 sites in Sefton which would handle inert wastes, and with a combined additional capacity of around 50,000 tonnes. This situation is typical of the slow drip-feed of additional capacity which is assumed to have limited effect on the overall total. It is assumed that all sites contribute to recycling capacity in handling any wastes which have been taken off the site where they originated.
Sources: Environment Agency listing of sites with waste management licences or environmental permits		

[11] Unlike the other streams, this forecast begins at 2007 in order to show the assumed fall in arisings which was associated with the onset of recession. Representatives of the local construction waste management sector have advised Merseyside EAS that a slowdown in construction rates became evident in 2007. It is likely that this actually reflected the end of projects related to the European Capital of Culture year and was then followed by further falls in 2008 as the recession bit.

[12] This figure is a significant reduction on the previous estimate of 2.6 million tonnes. That figure included three sites at Simonswood, near Kirkby, which straddles the border with West Lancashire. Merseyside EAS has been advised by Lancashire County Council that the capacity is not included in its current waste needs assessment, but this may not be the case in the future, and therefore it has been removed as a precautionary measure to ensure it is not double-counted in the future. However the EA's Waste Data Interrogator shows all the sites handled waste arising in Merseyside during 2009 and therefore this can be regarded as a very significant contingency.

Type of facility	Operational and consented capacity	Additional comments
Disposing of waste		
Non-inert landfill	425,000te annually – which is equivalent to 425,000m^3 of mixed partially inert waste or between 650,000m^3 and 850,000m^3 of compacted inert waste)	Some inert waste is being deposited at the Lime & Wood Pits landfill at Haydock, where material is used beneficially (for landfill engineering) or non-beneficially (deposited as fill in voidspace). The permission is due to expire in June 2012. The operator has tendered a proposal to seek an extension filling the residual void (which would hold 760,000te of material) but this capacity will only become available if the site receives permission to continue accepting waste. As an application had not been submitted by the time this assessment was completed continued operation is not a certainty and therefore the needs assessment does not assume capacity will be available after June 2012. This situation will continue to be monitored prior to adoption of the Waste DPD.
Inert landfill	3.5 million m^3 void - which is equivalent to between 5.5 million and 7 million tonnes of compacted inert waste	Two sites have consents to receive inert wastes only as both lie above a major aquifer. Collectively they have approximately 1.67 million m^3 of existing voidspace (which is included in the estimate to the left). Exploitation of the rest depends on future rates of mineral extraction of low-grade sandstone (Bold Heath, St Helens) and brick clay (Cronton Clay Pit, Knowsley). A further site at Moreton has closed since the last needs assessment was published[13].
Sources: Environment Agency listing of sites with waste management licences or environmental permits; liaison meetings with operators of the consented facilities (Spring 2009 onwards)		

In addition to the transfer station capacity above there is an unknown quantity of mobile screening and crushing equipment. However due to its use this capacity cannot be 'assigned' to Merseyside & Halton since it may be temporarily located on sites outside the sub-region and will only be generating locally managed waste if any crushed material is then returned to one of the local transfer stations for sorting and re-sale.

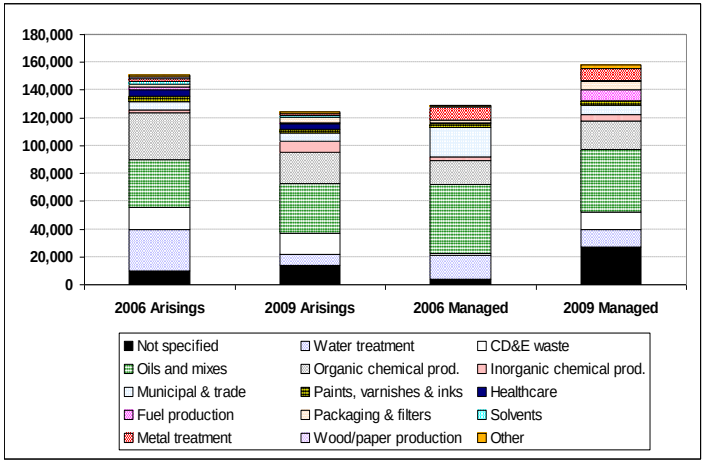
[13] This site still appears in listings of sites with Environmental Permits as supplied by the Environment Agency. However there may be a continuing management obligation for several years after closure of the site and the Permit cannot be surrendered until all aspects of restoration and environmental mitigation have been completed.

4. HAZARDOUS WASTE

A different approach has to be adopted for these materials because the hazardous waste management sector is organized so as to provide a regional and national network of facilities, whereas capacity for the other streams is largely provided by each sub-region, or sometimes by larger regionally-significant facilities. This difference results in a large proportion of locally produced hazardous waste leaving Merseyside & Halton because the specialized facilities need to recycle, treat or dispose of it exist elsewhere in the country. However this is balanced by a corresponding movement of a large quantity of hazardous wastes into the sub-region to those specialized facilities that exist locally. The waste management need is therefore the sum of locally-arising wastes that remain in the sub-region plus those that are imported.

Note also that the arisings totals for the other main waste streams have been reduced to take account of the hazardous proportion of each of them in order to eliminate the risk of double-counting around 160,000te of these materials. Table 6.1 contains more detail

4.1 HOW DO WE MANAGE HAZARDOUS WASTE & HOW WILL IT CHANGE?

	What is the current position?	*How do we assume it will change?*	*Basis of assumption*
Composition of the waste stream		No reason to believe there will be changes. Any that may occur will probably be substantial as the most likely causes are further changes to regulations or the closure of an important local facility. It is not possible to predict either with any certainty	Evidence based: the key changes shown in the graphic to the left are the drop in local arisings and increase in the quantity of imported wastes. The one notable change is the reduced quantity of LACW that was managed but that may reflect the introduction of facilities closer to the source of wastes that were being imported in 2006 (and possibly also reflecting the impact of WEEE collection obligations)
Management mix	In 2009 the mix for locally managed wastes was: • Treatment or recovery: 33% • Recycled: 44% • Incinerated: virtually nothing • Sent to landfill: 23%	No reason to believe there will be changes. Again, any that occur are likely to result from technological changes which allow increase in recovery or recycling but which also cannot be predicted with certainty	Comparison with analyses of the management mix for previous years which shows only minor changes to the proportions. (Note that the distribution is rather conservative as the landfill figure includes wastes that were recorded as going to "transfer facilities prior to disposal", the latter being assumed to be landfill sites because so little locally managed waste is sent to incinerators)

4.2 HOW MUCH WASTE WILL WE HAVE TO MANAGE?

Again, the approach adopted here is slightly different to the other streams because the management need must reflect the relative proportions of locally managed arisings, imports and exports, and the trends in each.

In 2004/5 there were a series of significant regulatory changes to the definition of hazardous wastes and how they should be managed. While these changes caused some problems with the quality of data, they had limited effect on the medium-term trends. These are summarized in Figure 4.1 and were already somewhat erratic, with marked changes from year to year. Nevertheless there are clear trends of falling quantities in all of them apart from the amount of waste that arises and is managed locally, which has risen slightly over the last decade.

This has led us to adopt a forecast with limited further change in all the elements of the management need, and to consider there is little need to model separate pessimistic and optimistic forecasts.

Figure 4.2 illustrates the main assumption of slight further reduction in local arisings and therefore the quantity of waste that is exported. With little change to the quantity that is imported, the total management need falls only slightly from 158,000te in 2010 to 154,000te by 2015 and thereafter. Meanwhile Figure 4.2 extends the rather erratic recent 'history' as a series of smoother trends which assume the relative quantities of local arisings, exports and imports do not change after 2015. This approach assumes that the legislative changes designed to reduce use of hazardous materials in products and components will have taken around 10 years to complete their effect.

Figure 4.1: Historical trend in hazardous waste arisings and management [Source: Environment Agency]

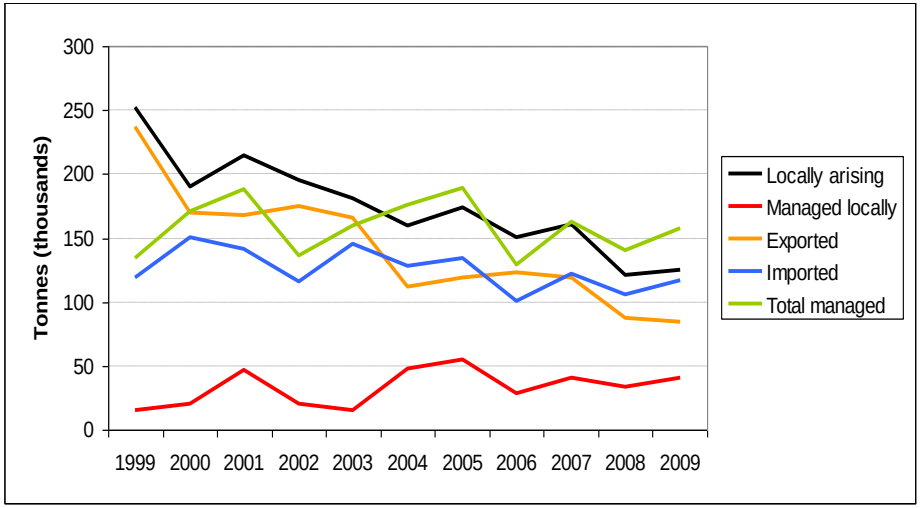
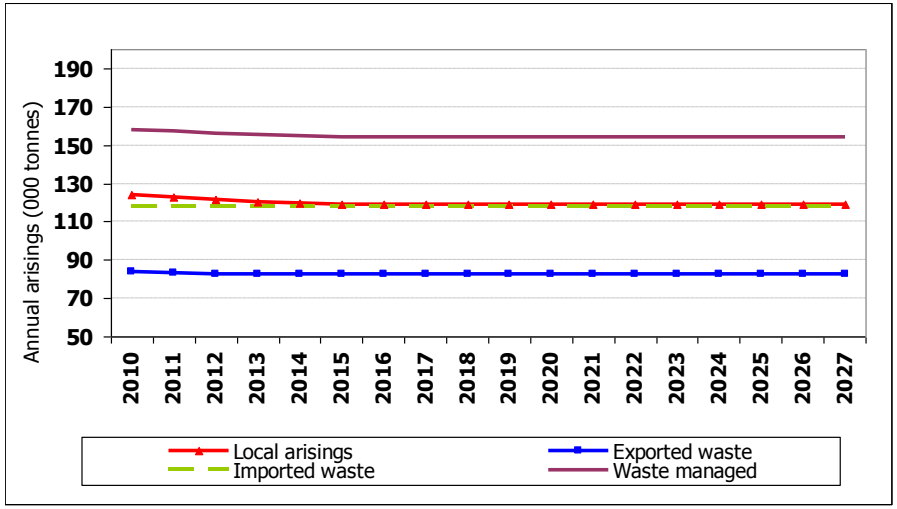


Figure 4.2: Forecast change in hazardous waste arisings and management [Source: Merseyside EAS]



4.3 HOW MUCH CAPACITY FOR MANAGING HAZARDOUS WASTE DO WE HAVE?

Type of facility	**Operational and consented capacity**	**Additional capacity & availability assumed**
Receiving, sorting and bulking waste		
Transfer stations	425,000te (13 sites)	These are mostly small-scale facilities including sites receiving tank-cleaning and similar wastes or handling clinical and health-care wastes
Sources: Environment Agency listing of sites with waste management licences or environmental permits		
Reprocessing and treating waste		
Reprocessing facilities	735,000te	Approximately 2/3rds of this capacity is provided by three facilities which recover waste oils and solvents, all of them receiving consignments from all over the U.K.
Treatment facilities	40,000te (1 site)	Veolia has also announced plans to build a small CHP facility with a capacity of around 12,000te at its treatment/recovery facility at Garston Dock in South Liverpool, however it had not been given consent at the time the needs assessment was finalized and therefore it is not counted as part of local capacity
Sources: Environment Agency listing of sites with waste management licences or environmental permits		
Disposing of waste		
Hazardous landfill	220,000te (1 site)	This capacity is Ineos Chlor's landfill site at Randle Island, Halton, which primarily takes waste from the company's chemical production plants in Runcorn and on Teesside. However the site is now functioning as a merchant facility though it is now accepting certain wastes on a merchant basis though it is not operating strictly as an open gate site
Sources: Environment Agency listing of sites with waste management licences or environmental permits; liaison meetings with operators of the consented facilities (Spring 2009 onwards)		

In addition to the landfill site referred to above, hazardous waste originating in Merseyside & Halton is currently taken to three other facilities:

- 'general' hazardous wastes are deposited at the regionally significant Whitemoss landfill to the south of Skelmersdale (just over the Merseyside border, in West Lancashire);
- similar wastes, including recovery residues, are also taken to the Veolia hazardous waste incinerator at Ellesmere Port (in Cheshire West);
- air pollution control (APC) residues are taken to the deep long-term underground storage facility operated by Minosus at Winsford (also Cheshire West).

Given the number of recent consents it is likely that the quantity of APC residues will increase as new thermal treatment facilities come into service. The needs assessment assumes that APC residues will be too hazardous to recycle, and that there is no requirement to provide local capacity when there is a nationally significant, specialized facility handling these wastes in an adjoining authority.

5. MANAGING OTHER CONTROLLED WASTES

Statutory waste planning obligations cover three other controlled waste streams:

- agricultural wastes
- low and very low-level radioactive wastes
- water treatment wastes[14].

Merseyside EAS estimated the quantity of ***agricultural wastes*** from a sub-regional survey undertaken in early 2007. Previous survey results published by EA estimated arisings of around 210,000te in Merseyside alone. However this figure is derived from an apportionment of the results of a regional survey which introduces a risk of error especially and it is not known what proxy was used to estimate local arisings.

The sub-region is predominantly urban or suburban but with expanses of agricultural land between Liverpool and Widnes; in the central and western side of the Upper Wirral peninsula; to the northwest and southeast of St Helens; and across the middle of Sefton. Unfortunately there are no other data sources available to check the accuracy of this earlier figure or a ratio between agricultural productivity and waste creation.

This situation is a particular problem for the needs assessment because the survey above estimated agricultural wastes were less than 10% of those suggested by the EA figures – ie. 19,000te. Nevertheless the sub-regional estimate is based on a bottom-up survey and there is reason to expect it would be more accurate provided those who responded to it are reasonably representative of agricultural activity within the sub-region.

In the circumstances the needs assessment has little alternative but to continue using locally-derived figures which suggest that agricultural wastes account for only around 0.5% of total controlled wastes created locally. Moreover, almost 90% of the wastes were slurries or straw, and over 92% of all the material was re-used or disposed at source, the latter primarily by land-spreading. Only 3% of the material was waste agricultural plastics which need to be collected or taken to a recycling or recovery facility.

With no other regular or occasional surveys of agricultural waste arisings, and given the small quantity that is apparently involved, a simplifying assumption has been used that the amount of waste which will need to be managed by the waste industry will remain roughly at current levels throughout the plan period and that no specific land requirements have been identified.

The quantity of ***low and very low level radioactive waste*** has been estimated from radioactive waste arisings data provided by the Environment Agency for 2006 which were analysed by Merseyside EAS. The analysis indicated arisings (actually disposals) of waste totalling 3,260 Becquerels, however it has not been possible to convert this into a corresponding tonnage which needs to be managed.

Low and very-low level wastes are primarily material from clinical treatment (eg. x-ray plates, etc.) and associated machinery although the records do not allow estimation of the materials involved. Virtually all the material (>99%) is generated by hospitals with the remainder created by industry (0.4%) and academic facilities (0.1%).

[14] As there are no new surveys of these streams, and as the Waste DPD position on them remains unchanged, this section provides a high-level summary of each. Further detail on the analyses of agricultural and radioactive wastes was presented in the 4th Needs Assessment report which is still available for viewing or download from the Waste DPD consultation portal.

All of the material is disposed along with other non-hazardous materials, with virtually all the waste (99.7%) being disposed to sewer, with minute quantities sent to a hazardous waste site for incineration or burial.

DCLG and the Environment Agency consulted in 2009 on proposals to modify the Environmental Permitting scheme which would give latitude to dispose of these wastes in dedicated cells in non-hazardous landfills, in the same manner as Stable Non-Reactive Hazardous Waste cells are provided in some sites today to take wastes containing asbestos or gypsum. Policy on this issue has yet to be announced, but it is known to be opposed by certain authorities in the North West region due to its potential blighting impact on the already-difficult problem of finding suitable landfill capacity for current and future needs.

As only very small quantities are involved and in the light of the way they are currently disposed (see section 3.7) it is assumed the level of arisings will remain roughly constant throughout the plan period, and there is little reason to suspect legislative changes or economic conditions will cause any significant change to these quantities. Therefore it is not evident that new methods for disposing of these materials will require extra land for facilities and therefore they are not considered in further detail by the needs assessment.

Responsibility for managing ***water treatment wastes*** lies with the regional water company, United Utilities, which operates a network of treatment works. The Waste DPD has a supporting role to identify suitable locations for additional infrastructure to enable the company to discharge its responsibilities. However, Merseyside EAS has held meetings with representatives of United Utilities which have focused on the scope to divest parts of their land portfolio and the suitability of these sites for waste facilities operated by third parties. The company has not indicated a need for new sites and therefore management of these wastes is not considered further by the needs assessment. However it also operates a sewage sludge incinerator at Shell Green, Widnes, which is regionally-significant for the Mersey Belt as it receives waste material from water treatment works in Merseyside & Halton, and by pipeline from Greater Manchester.

6. ASSESSING CAPACITY & SITE REQUIREMENTS

6.1 RECAP OF PRINCIPAL ASSUMPTIONS

It is helpful to provide a summary of the principal assumptions which have been applied. These are shown below in Table 6.1. In some cases the basis of the assumption is identified. Where this is not the case, the rationale is explained in the preceding chapters, or in the previous needs assessment report where there has been no change to an assumption in the interim. Table 6.2, which follows immediately after, summarises the principal adjustments of capacity which have been referred to in the previous sections, collecting them in a single location.

Table 6.1: Overview of Principal Assumptions About Waste Management [Source: Merseyside EAS]

	PARAMETER	ASSUMPTION FOR THE *OPTIMISTIC* FORECAST	ASSUMPTION FOR THE *PESSIMISTIC* FORECAST	LIKELY IMPACT OF MOST RECENT CHANGES
WASTE ARISINGS	Local authority collected waste growth	Falls at -0.75% per year to 2015 and then at -0.5% to 2020; then rises at +0.4% thereafter	Little growth to 2015 then increasing to 2020 before leveling off (gentle S-shaped curve)	Reduction in arisings over plan period which is very marked for the *optimistic*
	Commercial waste growth	Falls at -0.25% until 2020 then flattens off	Falls at -0.25% until 2015 (waste reduction); then rises at between +0.5% and +1% until 2025; then flattens off (a more marked S-shaped curve)	Reduction in arisings over plan period although effect is confined to short-term for the *pessimistic*
	Industrial waste growth	Further falls in arisings albeit at a decreasing rate with no growth after 2015	Zero growth	Reduction in arisings over the plan period due to lower forecast arisings
	CD&E waste growth	Falls at -3% from 2007 to 2010 (onset of recession); no growth to 2015 then at +0.1% to +0.2% thereafter	As for optimistic to 2013, then at +0.3% to +0.6% thereafter	Significant reduction over the entire plan period with arisings never climbing back to their pre-recession level
	Hazardous waste growth	Fall of -0.5% to -1% in local arisings to 2015 balanced by a slight increase of +0.5% in imported waste to 2013		Marginal fall in wastes over the period 2010-2015; no change thereafter
	Agricultural and LL/VLL radioactive wastes	No change from current levels		No change
MANAGING LA-COLLECTED WASTES	Household waste recycling & composting achievement	50% by 2020 but no further improvement as the priority will be to divert residual waste to energy recovery		Possible need for additional MRF during the next decade
	Management mix for collection of recyclables	60% via kerbside/MRF; 38% via HWRC; 2% via bring sites in 2010. By 2020 the kerbside/MRF route accounts for 75% with a corresponding reduction in HWRC 'share' as recycling improvements focus on the kerbside		Introduction of food waste collections may offset the need for an extra MRF
	Relative proportions of recycling and composting	Initially 70% recycled: 30% composted (current ratio) but will change to 55:45% by 2015 and 50:50 by 2020	Initially as for optimistic but will reach 55:45 by 2020 due to slower take-up of service (see below) and 50:50 by 2025	Increased requirement for capacity as the optimistic scenario is more bullish about achievement rates
	Roll-out of food waste collection / composting	Begins 2010 and all waste is diverted by 2020	Begins 2010 and all waste is diverted by 2025	Increased need for composting facilities sooner especially for the *optimistic* as it assumes a more bullish rate of uptake
	Use of LATS allowance	Fully used until 2015/2016 once PFI infrastructure allows increasing diversion of residual waste although the revision of the national Waste Strategy has announced the LATS system will be stopped after 2013		No change

	PARAMETER	ASSUMPTION FOR THE *OPTIMISTIC* FORECAST	ASSUMPTION FOR THE *PESSIMISTIC* FORECAST	LIKELY IMPACT OF MOST RECENT CHANGES
	Non-inert landfill void conversion ratio	1m^3 per tonne (this s a simplification as compaction of putrescible wastes can reduce it to 0.8m^3 per tonne but this will be offset by increasing diversion of these wastes to treatment, leaving more less compactable material		No change
	Pre-treatment of residual LACW	None, other than bulking and removal of outsize and inappropriate materials at municipal WTSs or at the EfW site		MBT and EfW facilities assumed to be co-located so no extra sites needed
MANAGING COMMERCIAL & INDUSTRIAL WASTES	Co-treatment of residual LACW and C&I wastes	Applies to food wastes and if a facility treats local C&I wastes and MSW from other sub-regions, otherwise residual MSW is managed separately as dictated by the PFI contract		No change
	Proportion of residual C&I waste pre-treated prior to recovery	85%, (more EfW capacity installed, and more needs pre-treatment to produce RDF/SRF)	67% (less EfW capacity installed and waste more likely to go direct to thermal treatment if cheaper)	Reduction in pre-/primary treatment capacity requirement though this will only be marked for the *pessimistic*
	Mix of treatment technologies	Determined by existing mix and phasing of delivery of capacity in new consents (ie. dynamic)		Limited effect from extra recyclables and inert residual waste produced
	Mix of process outputs	Based on industry examples (quantities will then depend on the mix of treatment technologies at a given time)		No change
	CHP capability	All consented thermal treatment facilities have energy generation capability though the mix of heat and power is not assessed		No change
	Recycling and recovery rates for C&I wastes	Recycling climbs to 65% by 2015 but rises no more. By 2020 28% of residual waste goes to treatment (recovery) and the remaining 7% to landfill	Similar to the optimistic but the recovery share only reaches 20% by 2020 with a higher residual level of landfill (15%)	Extra recovery in *optimistic* likely to be absorbed by surplus local EfW capacity. *Pessimistic* will increase landfill needs
	Diversion and treatment of food wastes	Same assumptions as for domestic (kitchen) waste and assumed to be co-treated		Likely to require more capacity sooner as the adoption rate is more bullish
	Co-disposal of C&I and LA-collected wastes to landfill	Approximately 15% of industrial wastes assumed to be unsuitable for co-disposal due to chemical properties (based on composition analysis)		No change
	Recycling of incinerator bottom ash	25% by 2015; 100% by 2020	Assumes market failure and disposal to landfill	*Pessimistic* assumption will have some effect on non-inert landfill need
MANAGING CD&E WASTE	Recycling and re-use of CD&E wastes	Currently 65%, increasing to 80% by 2020 and unchanged thereafter		Reduced landfill need in the short term but unchanged in the longer term
	Other ways of using CD&E wastes	Currently 13% land-spread and 5% used in landfill engineering. These fall to 10% (restricted exemptions and landfill tax levy) and 3% respectively by 2015. Non-beneficial fill in voidspace falls from 17% to 7% by 2020		Reduced landfill. Possible need for additional transfer station capacity
	Inert voidspace conversion	1.5 tonnes/m^3 to 2 tonnes/m^3 (rate applied varies with site according to advice of operator)		Increased need as 2:1 was applied previously to both sites
	CD&E waste sent to non-inert landfill	5% of the residual CD&E waste not recycled, re-used, land-spread or used in engineering is accepted at non-inert landfills as voidspace fill	As for *optimistic* but 15% is filled	Substantial reduction in amount of waste that would be exported to non-inert landfills elsewhere in the region
HAZ. WASTE	Hazardous component of other waste streams	LACW: 0.5%; commercial: 5%; industrial: 20%; CD&E: 0.6%. Stream totals are reduced by these amounts to prevent double-counting. (Proportions are identified from detailed analysis of stream composition)		Slight reduction in CD&E proportion; slight increase in commercial proportion
	Amount of hazardous waste disposed to landfill	10% (2009 figures indicate a slight increase to 12% which may represent a large consignment of contaminated soil or similar material – this figure should be regarded as a simplifying assumption		No change

Table 6.2: Overview of Future Capacity Increases & Changes [Source: Merseyside EAS]

This table combines details of new capacity which received planning consent since the last needs assessment, and it also identifies any other previously-consented capacity which has yet to be built or not yet in service.

WASTE STREAM	TYPE OF FACILITY	LOCATION	CAPACITY (TONNES)	AVAILABILITY & PHASING
Local authority collected waste	Materials recycling facility	Gillmoss (Liverpool)	100,000	Early 2012 with full capacity by end 2012
	Thermal treatment of residual waste	Ince Marshes (Cheshire West) or Tees-side	Ca. 450,000[15]	During 2015 with full capacity by end 2016
Co-treated local authority collected waste & C&I waste	Food waste composting (IVC)	Widnes Waterfront (Halton)	Ca. 50,000	*(See comment below regarding confidentiality)*
	Thermal treatment of pre-treated SRF from mixed sources	Runcorn (Halton)	Ca. 375,000 (of SRF)	Phase 1: capacity already earmarked for non-local waste – late 2012. Figure to the left is Phase 2 capacity - potentially available for local waste from mid 2014
	Green waste composting	Kirkby (Knowsley)	**65,000 reduction**	Removed (see footnote)[16]
		Storeton (Wirral)	10,000	Now in service
Commercial & industrial waste	Materials recycling facility	St Helens (St Helens)	90,000	Now in service
	Primary treatment of residual waste	Huyton (Knowsley) (MHT)	70,000	During 2012 (expansion of existing site)
		Widnes Waterfront (Halton) (MBT)	Ca. 150,000	*(Details of forecast launch dates have been provided by the respective site operators, however they are commercially sensitive and therefore cannot be disclosed. However they are used in the needs assessment forecast model)*
		Garston (Liverpool) (Autoclave)	150,000	
	Thermal treatment of auto-shredding wastes	Bootle (Sefton)	134,500	
	Thermal treatment of mixed residual wastes	Kirkby (Knowsley)	Up to 96,000	
Construction, demolition & excavation wastes	Sorting and recycling Inert landfill	Kirkby (Knowsley)	**1,300,000 reduction**	Removed (see second footnote)
		Sutton (St Helens)	25,000	Now in service
		Moreton (Wirral)	**100,000 reduction**[17]	Removed (see footnote)
Hazardous wastes	Sorting and bulking of clinical wastes	Sutton (St Helens)	5,000	Now in service

Detailed tables showing the quantities of materials from each of the principal streams passing through the various management stages based on the assumptions laid out above are provided in Appendix B.

[15] This capacity will be secured by MWDA long-term contract negotiated under its PFI-funded Recycling Contract process. For this reason the corresponding amount of waste is excluded from the needs assessment on the principle that the capacity to manage it will be delivered outside Merseyside & Halton. Both companies already have planning consent for the respective facilities.

[16] These sites straddle the boundary between Merseyside (Knowsley) and West Lancashire and have been shown as local facilities in recent listings of sites provided by the Environment Agency. Their capacity has been included in previous needs assessments for this reason. Although Lancashire County Council has confirmed that this capacity is not currently counted by its needs assessment, the capacity has been removed from Merseyside & Halton's assessment to ensure that it is not double-counted in the future. However details of waste transfer notes submitted by the respective site operators, indicate that a considerable amount of the waste handled by these sites originated in Merseyside. This capacity therefore represents a large, un-counted contingency.

[17] This site was included in previous assessments as its operational status was unconfirmed but Merseyside EAS has now been advised that it has closed.

6.2 INITIAL ESTIMATE OF SITE REQUIREMENTS FOR BUILT FACILITIES

Site requirements for built facilities are estimated in two stages: an initial estimate based on mass balance calculations is then adjusted to take account of contingencies and other issues. This section summarises the results of the first part of this process. Details of landfill requirements are provided in the next section.

Table 6.3 summarises the principal mass balance quantities output by the forecast for the *Optimistic* forecast. Table 6.4 on the following page summarises the corresponding results for the *Pessimistic* forecast. The right-hand side of each table indicates the typical capacity assumed for each type of facility and from this the number and phasing of facilities required, as well as the land requirement. The figures in the black cells are the capacity balance not the forecast arisings, and any shortfall is shown in red.

Table 6.3: Initial Mass Balance Estimate of Site Requirements for Built Facilities – Optimistic Forecast [Source: Merseyside EAS]

Waste managed	Capacity gap forecast					Facility	Cap'y	Facility forecast					Land	
Stream	2010	2015	2020	2025	2030	Facility type	(kte)	2010	2015	2020	2025	2030	Ha./site	Σ Ha.
LACW only	-42	26	18	14	10	Waste transfer & sorting: MRF	100	1	0	0	0	0	3	3
	174	185	195	194	193	Waste transfer & sorting: HWRC	15	0	0	0	0	0	1	0
	707	1006	1134	1134	1134	Waste transfer & sorting : municipal non-inert WTS	200	0	0	0	0	0	1.5	0
	0	0	0	0	0	Pre-treatment (mixed wastes): MBT, etc.	150	0	0	0	0	0	3	0
	482	411	397	392	387	Re-processor: dry recyclables	200	0	0	0	0	0	1.5	0
Commercial only	63	189	117	117	117	Pre-treatment (mixed wastes): MBT, etc.	150	0	0	0	0	0	3	3
	94	70	48	48	48	Pre-treatment (other wastes): specialised facilities	150	0	0	0	0	0	3	0
LACW & commercial	-37	-116	-152	-154	-156	Pre-treatment (food wastes): AD or IVC	50	1	2	1	0	0	1	5
	0	99	16	8	0	Thermal treatment: LACW	475	0	0	0	0	0	7.5	0
	0	720	828	828	828	Thermal treatment: non-municipal waste	200	0	0	0	0	0	7.5	0
Commercial & industrial	247	220	217	217	217	Waste transfer & sorting: merchant non-inert WTS	75	0	0	0	0	0	3	0
	132	139	137	137	137	Re-processor: specialist materials	100	0	0	0	0	0	1	0
Industrial only	46	22	-1	-1	-1	Pre-treatment (other wastes): specialised facilities	150	0	0	1	0	0	3	3
	11	11	11	11	11	Secondary treatment: specialised EfW	50	0	0	0	0	0	3	0
CD&E	817	670	602	583	574	Waste transfer & sorting: merchant inert WTS	200	0	0	0	0	0	1.5	0
Hazardous	247	250	250	250	250	Hazardous waste treatment	100	0	0	0	0	0	1	0
LACW & commercial	4	14	21	19	18	Open windrow composting	25	0	0	0	0	0	2.5	0

[*All capacity figures are in 000 tonnes*]

Table 6.3 shows an initial requirement for 6 additional sites typically occupying an area of around 11ha.

Table 6.4: Initial Mass Balance Estimate of Site Requirements for Built Facilities – Pessimistic Forecast [Source: Merseyside EAS]

Waste managed	Capacity gap forecast					Facility	Cap'y	Facility forecast					Land	
Stream	2010	2015	2020	2025	2030	Facility type	(kte)	2010	2015	2020	2025	2030	Ha./site	Σ Ha.
LACW only	54	29	16	16	16	Waste transfer & sorting: MRF	100	0	0	0	0	0	3	0
	171	187	195	195	195	Waste transfer & sorting: HWRC	15	0	0	0	0	0	1	0
	707	1006	1071	1115	1134	Waste transfer & sorting : municipal non-inert WTS	200	0	0	0	0	0	1.5	0
	0	0	0	0	0	Pre-treatment (mixed wastes): MBT, etc.	150	0	0	0	0	0	3	0
	475	420	393	385	385	Re-processor: dry recyclables	200	0	0	0	0	0	1.5	0
Commercial only	0	205	179	177	177	Pre-treatment (mixed wastes): MBT, etc.	150	0	0	0	0	0	3	3
	94	70	60	59	59	Pre-treatment (other wastes): specialised facilities	150	0	0	0	0	0	3	0
LACW & commercial	-37	-141	-152	-153	-153	Food waste treatment (IVC, AD, etc.)	50	1	2	1	0	0	1	5
	0	96	63	19	0	Thermal treatment: LACW	475	0	0	0	0	0	7.5	0
	0	720	878	875	875	Thermal: non-LACW	200	0	0	0	0	0	7.5	0
Commercial & industrial	243	203	177	166	166	Waste transfer & sorting: merchant non-inert WTS	75	0	0	0	0	0	3	0
	128	122	112	108	108	Re-processor: specialist materials	100	0	0	0	0	0	1	0
Industrial only	48	19	10	10	10	Pre-treatment (other wastes): specialised facilities	150	0	0	0	0	0	3	0
	11	11	11	11	11	Secondary treatment: merchant EfW	50	0	0	0	0	0	3	0
CD&E	892	745	677	658	649	Waste transfer & sorting: merchant inert WTS	200	0	0	0	0	0	1.5	0
Hazardous	247	250	250	250	250	Hazardous waste treatment	100	0	0	0	0	0	1	0

[*All figures are in 000 tonnes*]

Table 6.4 shows an initial requirement for 4 additional sites typically occupying an area of around 6ha.

The two forecasts are not dissimilar because the only significant divergence between the *Optimistic* and *Pessimistic* arisings forecasts occurs in LACW. This is evident in the slight difference in MRF requirements but not in the need for other recycling facilities as there is over-capacity of HWRCs. Differences in the requirement for landfill in the short-term are accommodated by the assumption that capacity will be available at Arpley or other WRG landfills regardless of the rate of change in arisings, and that in the longer-term there will be enough EfW capacity to deal with all diverted residual LACW.

In the other waste streams any divergence between the *Optimistic* and *Pessimistic* scenarios occurs after 2015 and therefore occurs after the substantial amount of recently consented capacity is assumed to come into service, limiting the likely capacity shortages.

Both sites indicate a requirement for 4 food waste composting facilities. Site requirements are estimated by dividing an average typical capacity for a site (which is based on examples of operational facility wherever possible) into the capacity requirement. It is possible that some of the food waste processing capacity may be delivered by a larger site, perhaps of 100,000te rather than 50,000te as estimated. In this case the site requirements would be reduced, with the result that the allocations in the Waste DPD contain an additional contingent site, thereby providing flexibility.

6.3 ADJUSTED & CONTINGENT SITE REQUIREMENTS FOR BUILT FACILITIES

As with the previous needs assessment it is necessary to make some adjustments to the initial mass balance estimate of the number of sites that are needed in order to provide flexibility that cannot be readily accommodated in the forecast model. These are summarized below.

(a) Recycling LACW

Additional MRF capacity required by the Optimistic forecast in 2010 will be provided once the Gillmoss facility comes into service in early 2012 and therefore this extra site can be ignored. Nevertheless the residual mass balance shown in the top row of Tables 6.3 and 6.4 shows only a small amount of spare capacity would be available, and this is likely to be within the potential error in the forecast. **ACTION: add a requirement for a further MRF as a contingency** (as this is a marginal, contingent requirement it might be supported by a "local" site (as defined by the Waste DPD) with an area of <4.5ha.).

A requirement has been identified for at least two additional HWRCs. MWDA is intending to provide an HWRC in Liverpool as the city has only one site at present, however none of the proposed allocations is considered suitable or in an appropriate location. The assessment assumes that any application to develop an as-yet unspecified location will be dealt with using the appropriate policy in the Waste DPD and therefore no additional contingency is provided. Separately, Halton's WDA has identified a need for a replacement HWRC in Runcorn and the Waste DPD contains one site allocation that is appropriate for this use. **ACTION: add a requirement for a further "local" site** in Halton[18].

(b) Managing Residual LACW

The previous site forecast provided for the needs of the MWDA's Outline Business Case for its Residual Waste contract, based on the presumption this would take the form of two co-located pairs of MBT and EfW facilities. In September 2010, MWDA announced that the final contract would involve a single EfW facility which would not be located in Merseyside & Halton, reducing the number of sites forecast by this revision. Notwithstanding this change, Merseyside EAS considers it is prudent to recognize the new contract may require land to accommodate a municipal WTS which would enable bulking of residual waste prior to dispatch to the EfW facility, as well as allowing some limited pre-treatment (eg. to remove outside material and metals) and possibly the trans-shipment onto rail or water transport. **ACTION: add a requirement for a further WTS site** (given the assumed co-location of functions this would need to be a "sub-regional" site (as defined by the Waste DPD) of >4.5ha.). This site would need to be ready before 2015 prior to the EfW facility coming on-stream.

[18] Additionally, MWDA is currently reviewing whether new sites are needed to replace existing HWRCs which either lack capacity or the facilities to accept an appropriate range of recyclables. The outcome of these reviews had not been announced by the time the needs assessment was finalized and therefore no adjustment is made for them. Nevertheless many of the allocated "local" sites are identified as suitable for this function and therefore the Waste DPD provides a degree of future-proofing for this requirement. Equally, any requirements can be evaluated using the relevant policy in the Waste DPD rather than with a specific allocation.

(c) Primary or Pre-Treatment of Residual C&I Waste (Mixed)

The tables in the previous assessment which corresponded to Tables 6.3 and 6.4 above indicated a need for additional primary or pre-treatment capacity for handling non-inert wastes. This requirement has disappeared as a result of two recent planning permissions granted to Jack Allen Holdings (150,000te autoclave facility at Garston Dock, Liverpool), and New Earth Solutions (approximately 150,000te MBT facility at Widnes Waterfront development zone, Halton). Specifically this means that two of the allocations in the Waste DPD have received planning permission to support these facilities. It is therefore necessary to reset the site requirements table to its former position so that there is a requirement for 2 additional primary treatment plants which are then satisfied by the corresponding allocations in the Waste DPD. **ACTION: add a requirement for 2 primary treatment facilities** recognizing the Waste DPD has already provided for this requirement.

(d) Treatment of Residual C&I Waste (Specialised)

The needs assessment distinguishes between those C&I wastes which will be similar to MSW and therefore capable of being managed the same way and those which will require separate and more specialized handling. These are likely to be wastes from industrial processes. The higher recycling rate assumed in the Optimistic scenario results in a small capacity shortage and therefore this is used as the basis of the site need forecast. Although the forecast suggests this capacity would not be required until 2020, beforehand there is only a small amount of surplus capacity and Merseyside EAS considers it prudent to assume the facility could be required by 2015, instead. **ACTION: adjust phasing of specialized treatment plant, bringing it forward by 5 years**.

(g) Hazardous Waste Treatment & Recycling

The previous needs assessment identified a modest capacity gap but this was based on an error in the mass balance calculation[19]. Once corrected this requirement has disappeared. However Merseyside & Halton contribute to the significant amount of regionally and nationally significant hazardous waste management facilities and Merseyside EAS considers it would be imprudent to make no provision, even as a contingency, for any future requirement. **ACTION: add a requirement for a hazardous waste management facility** (note that site profiles in the Waste DPD identify sub-regional and local sites which are unsuitable for this use because they are located in high flood risk zones).

(h) Other Compensatory Provision

The Waste DPD aims to deliver a self-sufficient waste plan net of the movement of wastes to and from the sub-region. The next section of this report identifies the forecast need to export residual non-inert non-hazardous wastes to landfills outside Merseyside & Halton due to a lack of local capacity which will have occured by the time the Waste DPD is adopted. The approach taken is to provide additional land allocations capable of accommodating built facilities which are large enough to deliver roughly the same capacity of recycling, reprocessing of treatment capacity (and which is likely to handle C&I waste) as the quantity of waste which is forecast to be exported annually. As the Waste DPD is committed to providing a net self-sufficient solution this compensatory provision, which was introduced at the Preferred Options consultation stage, is retained.

By making this extra provision the Waste DPD incorporates flexibility that could also allow use of these sites to accommodate new technologies in the future, which will be particularly advantageous if they help to increase landfill diversion rates further.

[19] In the case of non-hazardous waste, Merseyside EAS has reduced the available capacity of management facilities where it is known (based on press releases or details supplied by the site operator) that a proportion of the material will originate outside the sub-region. The residual capacity is then compared with the quantity of locally arising waste to identify any surplus or shortfall. The management requirements for hazardous waste are based on what is managed locally because of the high level of imports and exports and therefore all local capacity can be counted. However the previous assessment erroneously applied the approach used for non-hazardous waste, reducing the estimate non-landfill management capacity by 75%.

The analysis that follows in Section 6.4 shows that this could exceed 300,000 tonnes per year (or approximately 15% of LACW and C&I arisings) under the *Pessimistic* forecast. Since the Waste DPD site evaluation assumes sites of around 5ha. are needed to house facilities large enough to have a multi-authority catchment. **ACTION: add a requirement for two additional facilities (non-specific)** to compensate for material exported to landfill outside Merseyside & Halton.

Table 6.5 summarises the adjusted site requirements forecast in the light of these changes, identifying only those waste management facility types where there is a need for additional capacity. In this table the sites "required by 2010" need to be brought forward as soon as possible in order to meet a local need that is currently being managed with contingencies, and which is therefore likely to involve export to other sub-regions. Thereafter, the date identifies the year by which the capacity is needed in service.

Table 6.5: Summary of Adjusted Site Requirements for Built Facilities [Source: Merseyside EAS]

Stream	Facility type	2010	2015	2020	2025
LACW	MRF		1		
	HWRC	1			
	Bulking prior to delivery to EfW plant		1		
LACW+C&I	Food waste composting	1	2	1	
C&I	Primary treatment (mixed waste)	2			
	Treatment (non-mixed waste)		1		
Non-hazardous	Unspecified built facilities		2		
Hazardous	Treatment		1		
		4	8	1	0

Site requirement based on current forecast	
Site requirement based on current forecast - adjusted phasing	
Site requirement delivered by proposed allocations	
Site provided as contingency	
Site provided as compensation for landfill exports	

6.4 CAPACITY REQUIREMENTS FOR NON-INERT LANDFILL

Merseyside EAS has undertaken a comprehensive survey of active and historic landfill sites within the sub-region, looking also at other potentially exploitable brownfield sites identified in the National Land Use Database, and current and former mineral working sites. The survey concluded that there are no new suitable, sites within the sub-region that are also likely to be deliverable[20]. In this case, deliverability has been judged in terms of landowner agreement to development of the site; its acceptability to the local planning authority; and in some cases the practicality in engineering and financial terms of developing or reinstating the site.

As a result Merseyside & Halton currently has a single non-inert non-hazardous landfill, operated by Cory Environmental Ltd at Haydock (Lyme & Wood Pits), however the planning permission for the site will expire in June 2012. The operator has submitted details to the local planning authority estimating that there will still be a void of approximately 760,000m^3 when the current permission expires, and is in the process of preparing options for continued operation of the site which are to be reviewed and agreed with the Council, Environment Agency, etc. in order to complete filling and allow its restoration as a country park. **However, at the time the needs assessment was completed, the possibility that this site would accept further deposits had not been substantiated and Merseyside EAS has not assumed that capacity will be available after June 2012**.

Separately, WRG Ltd disposes residual LACW from Merseyside & Halton to its landfill site at Arpley until 2015 and the capacity needed to accommodate this waste is included in the needs assessment as it is secured by a contract with MWDA[21]. The current planning permission for Arpley expires in 2013 and the operator is preparing an application for an extension of operations (but not capacity) until 2025. The needs assessment assumes that, in order to fulfil its contract with MWDA, WRG will make arrangements to landfill residual waste at other sites which it operates in the region in the period 2013 to 2015 if the permission for Arpley is not granted. However, **at the time the needs assessment was completed there is no firm contract guaranteeing further capacity will be available after 2015 and no assumption is made that the Arpley site (or another landfill) can be used to take a dwindling amount of residual LACW**.

As a result, the Waste DPD has no option but to adopt the policy position that non-inert non-hazardous residual wastes will have to be sent to landfills in other authorities. This position presents a dilemma in three respects:

- Planning soundness: Planning Policy Statement 10 – Planning for Sustainable Waste Management requires communities to make provision to manage the wastes they create. In situations such as this, where authorities consider they cannot provide for their own needs, H.M. Planning Inspectorate and the Planning Officers' Society have advised Merseyside EAS that evidence must be provided to substantiate the proposed policy position;

[20] The approach to the survey and the sites considered are not discussed further here but are provided in a separate evidence paper which can be accessed and downloaded from the Waste DPD consultation paper. Electronic and paper copies are also available from Merseyside EAS on request.

[21] The needs assessment deals with this situation as a special case because capacity in another waste planning authority has been secured under contract. It assumes the capacity available at Arpley exactly matches the forecast residual disposal need for LACW but it does not count the entire capacity of the Arpley site as being available.

- Deliverability [1]: as the wastes involved are from businesses and construction sites the detail of where and how they are disposed will depend on commercial contracts between waste management companies and their clients. Merseyside EAS and the region's waste planning authorities have no control over these contracts and the only way they can influence these companies' options is by controlling the supply of landfill voidspace through planning permissions;
- Deliverability [2]: there is a substantial body of evidence which shows that deposits to non-inert landfills are falling consistently, largely as a result of rising landfill tax. As a result there is a widening gap between the fill rates originally assumed by site permits and how much is being deposited at present. Many of the region's landfills currently face the prospect that their permissions will expire before they have been filled (ie. the situation which applies at the Lyme & Wood Pits site. Since Merseyside & Halton is assumed to have no local non-inert landfill capacity after June 2012 the opportunity to export non-inert wastes to landfills elsewhere in the region will depend entirely on decisions taken by other sub-regions about whether to extend permits to allow continued exploitation of their residual voidspace.

Therefore the Waste DPD cannot provide conclusive evidence that there will be sufficient local void to meet the forecast need because it cannot deliver new non-inert landfill capacity, nor can it guarantee that capacity elsewhere in the region will be available. Merseyside EAS has prepared a separate evidence paper which summarises the evidence on these points. The paper will be provided to the H.M. Planning Inspectorate as evidence for consideration during the Examination Hearing into the soundness of the Waste DPD. However the details of voidspace location and capacity are commercially confidential and therefore the full report cannot be made public in order to respect undertakings given to the site operators who were involved in preparing this review of evidence. The rest of this section provides a summary of the materials and the quantity of waste involved.

The materials involved are forecast to comprise:

- *Residual LACW* – the JMWMS for Merseyside is being revised in the period when the needs assessment work was completed. The JMWMS identifies targets of reducing LACW sent to landfill to 10% of arisings by 2020 and 2% by 2030. These figures are well within the existing LATS targets for Merseyside and also reflect the minimum quantities of residual waste which will be sent to the thermal treatment facility following removal of recyclables, etc. Since the materials will not be CD&E wastes they will not be suitable for disposal in local inert landfills and therefore they will continue to require capacity at non-inert sites instead;
- *Residual mixed waste from other sources* – initially mixed wastes such as paper/card contaminated with food waste and fats, however this is assumed to be diverted to energy recovery facilities in the next five years. Thereafter the material will be increasingly industrial wastes which is it not possible or not economic to reprocess;
- *Waste treatment residues* - material left over after residual waste has been treated in treatment facilities (13%-25% of the mass of input waste for MBT, MHT, etc.) or after composting (typically 5% of input waste for both open and closed);
- *Thermal treatment residues* (ie. incinerator bottom ash from EfW plants). The *Optimistic* scenario assumes the market to reprocess material into secondary aggregate will divert all material by 2020, whereas the *Pessimistic* assumes market failure;

- *Unused refuse-derived fuel* – if supply of RDF/SRF predates the market to use it (ie. EfW capacity) then any unused material is assumed to go to landfill, which is happening elsewhere in the UK currently. (In practice, the model assumes the roll out of preparation (ie. pre-treatment) and consumption of RDF/SRF will be roughly coincident so this material does not go to landfill);
- *CD&E wastes not suitable for local disposal* – new allocations for local inert landfills are restricted by planning conditions to accepting a limited range of waste fines or soils. Other materials that cannot be recycled will also go to non-inert landfill;
- *Other CD&E wastes* – these are assumed to be uncontaminated or decontaminated stones and soils. There is evidence that some non-inert landfills in the region are currently accepting these materials for non-beneficial use – ie. they are being deposited in the voidspace in order to maintain fill rates and generate gate fees.

Figure 6.1 shows the total annual voidspace requirement and balance for non-inert waste. Figure 6.2 shows the composition of the disposed materials at five year intervals so that the relative proportions of LACW, C&I and CD&E wastes are evident.

Figure 6.1: Forecast Non-Inert Landfill Need – Optimistic Scenario [Source: Merseyside EAS]

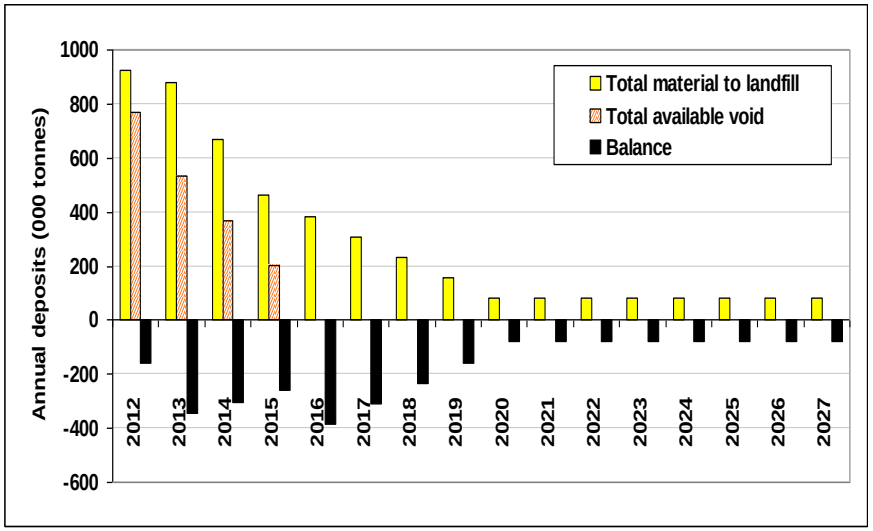
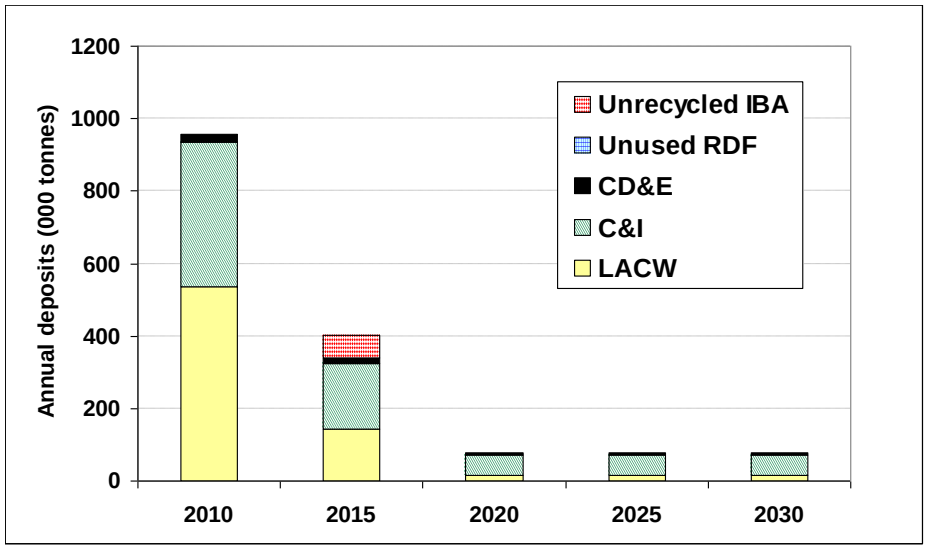


Figure 6.2: Materials to be Landfilled – Optimistic Scenario [Source: Merseyside EAS]



In Figure 6.1 "Total available void" figure comprises capacity at Lyme & Wood Pits (to 2012), capacity contracted to MWDA at Arpley landfill until 2015 and a small amount of capacity on restricted sites[22].

[22] MWDA has a contract with WRG Ltd for the landfill disposal of residual LACW until 2015, with material being sent to Arpley landfill. Although that site is in Warrington, the capacity has been secured by contract and it is therefore legitimate to count it as part of local waste management capacity. The needs assessment assumes the capacity needed exactly balances the forecast quantity of residual waste sent to the site but not the entire capacity at Arpley. As noted previously, MWDA still expects to send a decreasing amount of LACW to landfill beyond 2015, however this is shown as a deficit because there was no contract to provide additional void beyond 2015 in place at the time when the needs assessment was completed.

This qualification also applies to Figure 6.3 on the following page which, together with Figure 6.4, provide the corresponding forecasts for the *Pessimistic* scenario, and Table 6.6 then summarises the results of the two forecasts.

Figure 6.3: Forecast Non-Inert Landfill Need – Pessimistic Scenario [Source: Merseyside EAS]

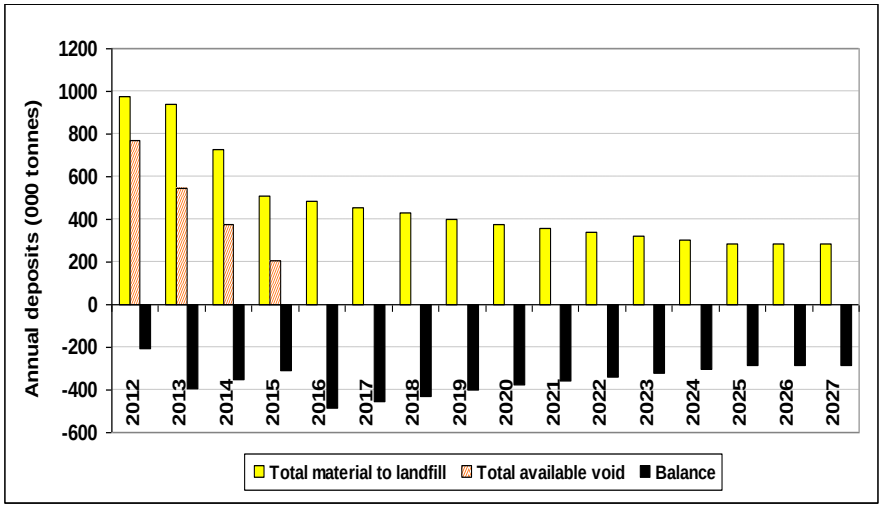


Figure 6.4: Materials to be Landfilled – Pessimistic Scenario [Source: Merseyside EAS]

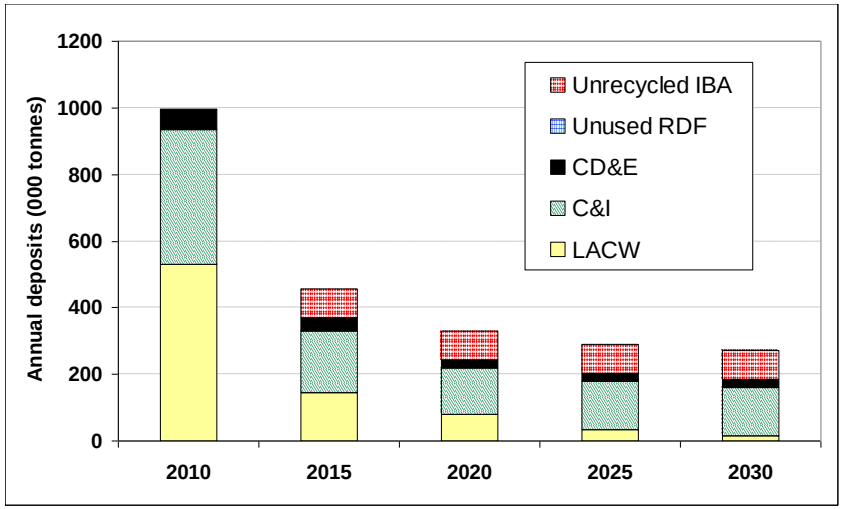


Table 6.6: Comparison of Non-Inert Landfill Need Forecasts – 2012 to 2027 [Source: Merseyside EAS]

All figures in 000 tonnes

	Optimistic forecast	*Pessimistic forecast*
Total LACW to be sent to non-inert landfill	1879	2306
*External voidspace **secured by contract** to accommodate LACW*	1427	1448
LACW voidspace mass balance	-451	-857
Total non-LACW to be sent to non-inert landfill	2789	5175
Local voidspace to accommodate non-LACW	449	449
Non-LACW voidspace mass balance	-2341	-4726
Additional void needed (complete plan period)	2792	5584
Additional void needed (first 10 years of plan period)	2309	3760
Additional void needed (typical annual need in the longer term)	Approx. 80	300 (Average)

6.5 CAPACITY REQUIREMENTS FOR INERT LANDFILL

Merseyside & Halton currently has no active inert landfills, however the Waste DPD includes allocations for two locations which have planning consent and which are expected to become active in 2011 or 2012. Both have existing voidspace, being part-exploited mineral extraction sites, and therefore the future rate of filling will be influenced by commercial demand for low-grade sandstone (from Bold Heath quarry, St Helens) and brick-making clay (from Cronton Claypit, Knowsley) respectively. Both sites are also underlain by a major aquifer and as a result the range of materials they can accept will be strictly controlled by their Environmental Permits and by planning conditions.

Table 6.7 summarises the principal assumptions that have been used.

Table 6.7: Principal Assumptions for Exploiting Inert Landfill Voidspace [Source: Merseyside EAS, from discussions with site operators]

	Existing voidspace	Exploitable voidspace	Scen.	Operational life of site	Over-burden	Density conversion
Bold Heath Quarry	1.46 million m^3	2.43 million m^3	Opt. Pess.	14 years	10%	1.75te/m^3 1.5te/m^3
Cronton Claypit	0.50 million m^3	0.75 million m^3	Opt. Pess.	4 years 8 years	10%	2te/m^3 1.75te/m^3

Figure 3.1 in this report shows the construction industry is in a slump and is unlikely to see any growth in arisings before 2015 once the economy emerges from recession. This does not mean no waste will be created, but it suggests demand for building materials and the need to dispose of unrecycled soils and rubble will be reduced. This must be reflected in the forecast. The assessment of extraction rates must be consistent with this position, and therefore under the *Pessimistic* scenario the needs assessment assumes limited extraction until 2015, rising in the period to 2020, and then falling again. A similar approach is adopted to the rate at which the existing and newly-created void is infilled.

Extraction and infill rates assume the available voidspace is fully exploited and they are adjusted to ensure this, but with the lowest rate in the final period before closure when dwindling voidspace limits the infill rate in the final years of the site's life. As indicated in Table 6.7, both forecasts are also adjusted to assume 10% of the deposited material is backfilled overburden or cover, not waste from off-site.

Figures 6.5 and 6.6 show the timelines for the exploitation of capacity under the two scenarios.

Figure 6.5: Trend for Inert Landfill Need – Optimistic Scenario [Source: Merseyside EAS]

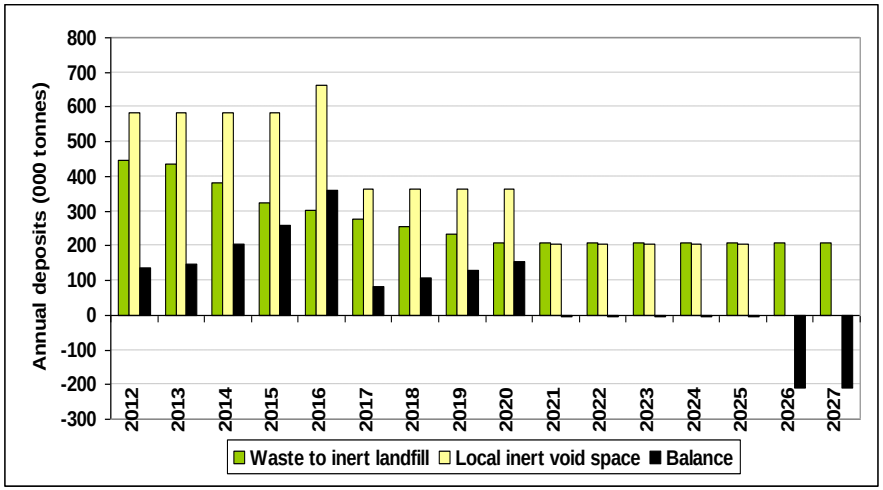


Figure 6.6: Trend for Inert Landfill Need – Pessimistic Scenario [Source: Merseyside EAS]

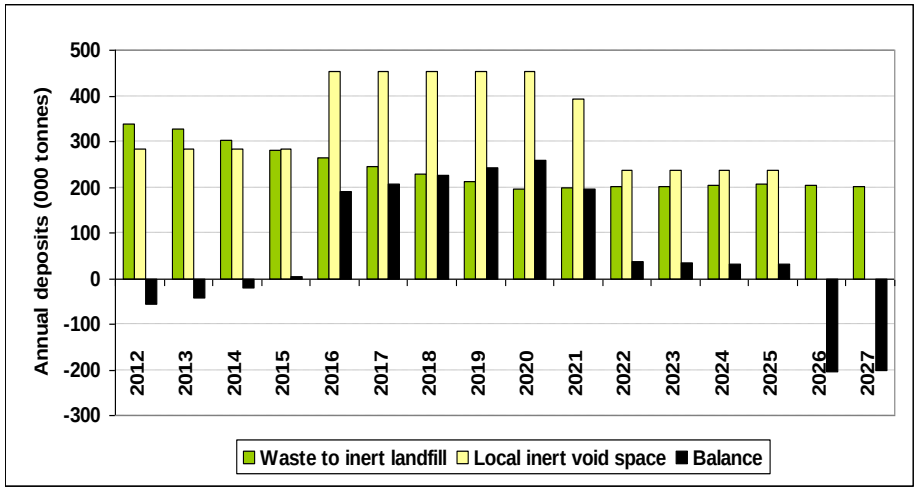


Table 6.8 summarises the total quantities involved over the entire plan period and indicates any periods when the total requirement exceeds the supply of voidspace, even if the overall balance over the life of the plan indicates there is surplus capacity. Note that the figures in the third column of Table 6.7 assume a total of a little over 3 million m^3 of voidspace but in terms of waste mass this is increased once the density conversation factors in the final column are also taken into account.

Table 6.8: Comparison of Inert Landfill Need Forecasts [Source: Merseyside EAS]

	Optimistic forecast	*Pessimistic forecast*
Total material to be sent to inert landfill	4331	3889
Local voidspace to accommodate material	5472	4745
Overall capacity balance	1141	857
Periods of capacity shortage	2026-2027	2012-2014 2026-2027

Figure 6.6 indicates that a short-term capacity shortage may exist in the first two years of the plan under the *Pessimistic* assumptions, which assume a slower rate of voidspace creation at the Cronton site, whereas Figure 6.5 suggests this will not exist under the *Optimistic* assumptions. PPS10 requires the Waste DPD to make provision for landfill capacity for at least the first ten years of the plan period, however voidspace creation at both inert landfills will depend to some degree on the mineral extraction

rates at the sites. Figure 6.5 suggests the maximum available voidspace would be around 140,000te while Figure 6.6 suggests a shortfall of around 50,000te. Collectively these figures suggest that even a relatively small increase in voidspace creation rate at Cronton compared to that assumed for the *Pessimistic* forecast could eliminate the shortfall, with the result that the only period of forecast deficit will occur more than ten years into the plan period.

One further point of clarification is necessary. The *Optimistic* forecast assumes a lower quantity of unrecycled CD&E waste is sent to non-inert sites than the corresponding *Pessimistic* forecast. This explains why it identifies more material even though the arisings forecast shown in Figure 3.1 is lower than that for the *Pessimistic* forecast.

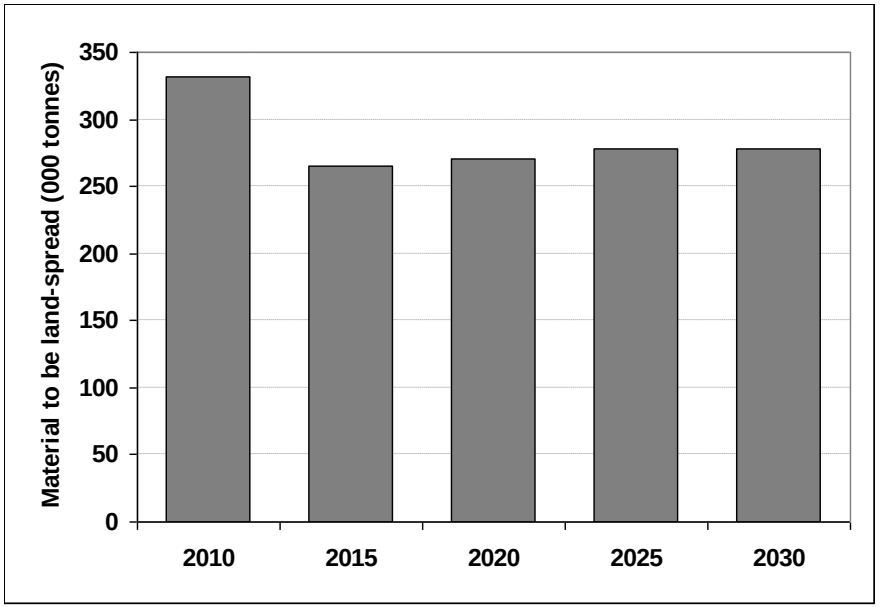
6.6 OTHER REQUIREMENTS FOR OPEN SITES

6.6.1 Land-spreading of waste

The figure in Chapter 3.1 of this report shows that 10% of CD&E wastes are assumed to be disposed by land-spreading – for example, the use of recovered (and possibly decontaminated) soils in landscaping projects. The needs assessment assumes the amount spread on exempt sites will fall as a result of changes to the threshold below which an exemption from the need for an Environmental Permit can be sought, and because spread waste will attract inert landfill tax. Notwithstanding these effects, the needs assessment assumes that the demand for soils for landscaping will hold up, albeit at a reduced rate, with more waste being land-spread under an Environmental Permit.

As explained in Chapter 3, there is a single forecast for CD&E wastes. Figure 6.7 shows the total amount of material that will need to be disposed in this way over the plan period. The Waste DPD does not make any allocation for this material as it will be deposited wherever there is a market demand. This will shift during the plan period, although obvious sources of demand include the Wirral, Liverpool and Runcorn Waters developments and for the Second Mersey Crossing.

Figure 6.7: Quantity of Material to Be Land-Spread [Source: Merseyside EAS]



Assuming an average depth of 1m. (the maximum permitted is 2m.) and a compaction rate of 1.5 tonnes of material per m^3, then the total area of exempt site(s) needed is less than the figures shown above. Therefore, by 2020 and thereafter, the annual requirement is for deposit of around 160,000m^2, equivalent to an area of 15-16ha.

6.6.2 Open windrow composting

From previous detail on the assumptions used in the needs assessment it will be clear that it has also considered the need for additional open windrow composting capacity.

The Optimistic scenario identifies a small annual surplus of around 20,000te whereas the Pessimistic scenario shows a surplus roughly 50% of this size. If any of the existing sites are not operating at full capacity this might lead to shortage in the longer term.

However Table 6.2 identifies that the Whitemoss Horticulture site at Simonswood, near Kirkby, has been removed from the estimate of local capacity. Environment Agency records lists the site as being in Merseyside because that is the location of its entrance. The site offices, composting pads, and the parallel peat extraction areas are all in West Lancashire.

The most recent data (for 2009) show it accepted over 62,000te of material but unfortunately the origin of all material is not shown. However following discussion with the site operator it is estimated that at least half of the throughput originates in Merseyside.

The site has been excluded from capacity estimates to prevent the capacity being counted in both the Merseyside and Lancashire needs assessments (though this is not happening at present), and because much of the material is delivered to the site on an open gate basis and not on long-term contract. The needs assessment cannot, therefore, be certain that the capacity will be available in the future. Nevertheless the site is long-established it is reasonable to assume that it has a mature catchment and that the quantity of material sent from Merseyside to the site will remain at this level in the immediate future. Therefore the small surpluses referred to above are supported by a significant additional contingency that cannot be added to the total.

Moreover, the locational characteristics for open windrow composting sites are quite different to other waste facilities insofar as they can be regarded as appropriate development in the Green Belt, provided the scale of operations is not too significant and the facility is co-located with existing agricultural activities and buildings. The needs assessment therefore assumes that any additional capacity will be delivered either by expansion of the facilities that are already permitted, or by applications to develop new sites which will be assessed using the criteria-based policies in the Waste DPD rather than by identifying specific allocations.

APPENDIX A: PRINCIPAL REFERENCE SOURCES

This list below identifies the principal documents which have been used to inform the needs assessment at the current and previous stages.

Author(s)	Title	Puiblication date(s)
Arup Ltd	Draft update of the North West Regional Waste Strategy (2nd and 3rd unpublished drafts)	September and October 2009
Business, Enterprise & Regulatory Reform	Strategy for Sustainable Construction	June 2008
Cambridge Econometrics & SQW Consulting Ltd	Liverpool City Region Economic Prospects and Projections (report for City Region Partners)	October 2007
Communities and Local Government	Planning Policy Statement 1 – supplement: Planning and Climate Change	September 2007
Communities and Local Government	Planning Policy Statement 10: Planning for Sustainable Waste Management (and the supporting Companion Guide) (revised version)	May 2011
Communities and Local Government	Second Round Growth Points	July 2008
Contaminated Land: Applications in Real Environments (CL:AIRE)	The Definition of Waste: Development Industry Code of Practice (revision)	September 2008
D Morgan Ltd	Need for Both Quarried Material and Quarry Void Space for Inert Infilling (proof of evidence submitted in support of planning appeal with respect to Bold Heath Quarry, St Helens)	February 2009
defra	A strategy for hazardous waste management in England	March 2010
defra	Commercial and industrial waste in England: statement of aims and actions, 2009	October 2009
defra	Consultation document on meeting EU Landfill Diversion Targets	March 2010
defra	Consultation document on the introduction of restrictions on the landfilling of certain wastes	March 2010
defra	Local Authority Collected Waste – Definition of Terms (circular)	February 2011
defra	Stage 2 consultation document on the transposition of the revised Waste Framework Directive (Directive 2008/98/EC)	July 2010
defra	Waste Strategy for England (and accompanying appendices)	April 2007
Entec Ltd	Waste composition analysis: interim report Spring 2010 (produced for the Merseyside and Halton Waste Partnership)	April 2010
Enviros Ltd	Planning for Waste Management Facilities: a Research Study (report to the Office of the Deputy Prime Minister, now Communities and Local Government)	August 2004
European Union	Council Directive 1999/31/EC on the landfill of wastes (the Landfill Directive)	April 1999
European Union	Council Directive 2006/12/EC of the European Parliament and of the Council on waste (the revised Waste Framework Directive)	April 2006

Author(s)	Title	Puiblication date(s)
Government Office for the North West	North West of England Plan: Regional Spatial Strategy to 2021	September 2008
H M Government	The Hazardous Waste (England and Wales) Regulations 2005 (SI 2005 No.894)	March 2005
H M Government	The List of Wastes (England) Regulations 2005 (incorporating the European Waste Classification)	July 2005
H. M. Planning Inspectorate	Application Under Section 36 of the Electricity Act 1989 and Appeal Under Section 78 of the Town & Country Planning Act 1990 by Peel Environmental Ince Ltd Relating to a Refuse Derived Fuel Plant & Resource Recovery Park on Land at Ince Marshes, Cheshire	Dated October 2008 but only published in August 2009
Institute for European Environmental Policy, Ecologic & others	Final Report – Supporting the Thematic Strategy on Waste Prevention and Recycling	October 2010
Merseyside Environmental Advisory Service	Planning Implications Report (to inform development of the Joint Merseyside Waste Development Plan Document)	February 2008
Merseyside Environmental Advisory Service	Preferred Options Consultation Report (supporting the Joint Merseyside Waste Development Plan Document)	May 2010
Merseyside Environmental Advisory Service	Spatial Strategy and Sites Consultation Report (supporting the Joint Merseyside Waste Development Plan Document)	November 2008
Merseyside Environmental Advisory Service	Sustainability Appraisal Scoping Report for Stakeholder Consultation (supporting the Joint Merseyside Waste Development Plan Document)	December 2006
Merseyside Waste Partnership	Joint Municipal Waste Management Strategy for Merseyside 2008 (headline strategy and supporting documents)	August 2008
Merseyside Waste Partnership	Waste PFI Project Outline Business Case	May 2006
Nathaniel Litchfield & Associates Ltd	Northwest Household Growth Estimates Study (report for North West Regional Assembly in support of the North West RSS)	August 2005
Northwest Regional Intelligence Unit	The State of the Northwest Economy – A Long-Term Forecast for the Northwest: 2010-2030 (report by the Regional Economic Forecasting Panel)	January 2011
Northwest Regional Technical Advisory Body	4th Waste Management Monitoring Report (report for 4NW Regional Leaders Forum)	March 2009
Northwest Regional Technical Advisory Body	5th Waste Management Monitoring Report (report for 4NW Regional Leaders Forum)	June 2010
Northwest Regional Technical Advisory Body (Regional Strategy Working Group)	Consolidated background paper (defining revised apportionments for the treatment and disposal of controlled wastes in the Northwest region)	June 2010
Pion Economics and Cambridge Econometrics	Economic Forecasts for the Liverpool City Region: Recession & Recovery (Summary Report)	December 2009

Author(s)	Title	Puiblication date(s)
Scott Wilson Ltd	Energy from Waste: feedstock supply and demand in the Northwest (report prepared for Envirolink Northwest)	August 2010
SLR Consulting Ltd	Waste Development Plan – Revised Needs Assessment (report for Merseyside Environmental Advisory Service)	December 2007
SLR Consulting Ltd	Waste Planning: Initial Needs Assessment for Waste Management Facilities in the Merseyside Area (report to St Helens Council)	August 2005
Smiths Gore Ltd with Terraconsult Ltd	Study to fill the evidence gaps for construction, demolition and excavation waste streams in the North West region of England (report for NW RTAB and the North West Minerals & Waste Planning Authorities)	July 2007
Urban Mines Ltd	A survey of North West Recyclers and Reprocessors (report to Envirolink Northwest)	April 2007
Urban Mines Ltd	Commercial and Industrial waste data analysis of the North West Region (report for the Environment Agency)	December 2008
Urban Mines Ltd	North West of England Commercial and Industrial Waste Survey 2009 (report for the Environment Agency)	March 2010
Urban Mines Ltd	Study to full the evidence gaps for commercial and industrial waste streams in the North West region of England (report for NW RTAB)	May 2007
Urban Mines Ltd with Griffin Hill Ltd	Nationally, Regionally & Sub-regionally Significant Waste Management Facilities (report for 4NW and North West RTAB)	October 2008
Waste & Resources Action Programme	Comparing the cost of alternative waste treatment options – WRAP Annual Gate Fees Report [3 editions]	July 2008, August 2009 and August 2010
Waste & Resources Action Programme	Construction, demolition and excavation waste arisings, use and disposal for England 2008	April 2010
Waste & Resources Action Programme	Environmental benefits of recycling	April 2010
Waste & Resources Action Programme	Local authority trade waste and recycling survey 2010	February 2010
Waste & Resources Action Programme	The quality protocol for the production of aggregates from waste	September 2005

APPENDIX B: ASSESSMENT RESULTS – OPTIMISTIC SCENARIO

LA-COLLECTED ARISINGS & MANAGEMENT — All figures in 000 tonnes

LACW - key targets & assumptions	2010	2015	2020	2025	2030
Estimated total waste arisings	**832**	**801**	**783**	**799**	**815**
Household recycling and composting rate	34%	45%	50%	50%	50%
Recycling share of out-turn or target	68%	60%	55%	55%	55%
LATS allowance (68% BMW)	**443**	**289**	**232**	**232**	**232**
Landfill allowance achievement	100%	50%	7%	7%	7%

LACW arisings by management & shares	2010	2015	2020	2025	2030
Household waste arisings	757	729	713	727	742
Non-household waste arisings	75	72	70	72	73
Household waste recycled	174	197	196	200	204
Non-household waste recycled	37	36	35	36	37
Household waste composted (green waste)	76	66	59	61	62
Household waste composted (kitchen/food waste)	8	66	101	103	105
LACW diverted to treatment	94	292	375	383	391
LACW diverted to primary treatment	0	0	0	0	0
LACW sent directly to secondary treatment	0	292	375	383	391
LACW sent to landfill requiring pre-treatment	443	145	16	16	16
LACW sent to landfill due to lack of treatment capacity	94	0	0	0	0

RECEIVING & SORTING OF RECYCLABLES

LACW - recycling & composting requirement	2010	2015	2020	2025	2030
Recycled LACW (excludes composted waste)	212	233	231	236	241
Proportion of recyclables collected from kerbside	60%	70%	75%	75%	75%
Household & nonhousehold recyclables taken to MRF	142	174	182	186	190
MRF capacity	100	200	200	200	200
MRF capacity mass balance	**-42**	**26**	**18**	**14**	**10**
Other recycleables brought to HWRCs	66	55	45	46	47
HWRC capacity	240	240	240	240	240
HWRC capacity mass balance	**174**	**185**	**195**	**194**	**193**
Material collected from bring sites	3	4	4	4	4
Composted waste arisings - out-turn or target					
Green waste collected from kerbside or taken to HWRC	76	66	59	61	62
Green waste composting capacity	100	100	100	100	100
Green waste composting mass balance	**24**	**34**	**41**	**39**	**38**
Products and residues					
PAS100 standard organic compost	30	26	24	24	25
Inert material discarded from compostables	4	3	3	3	3

REPROCESSING RECYCLABLES

Combined LACW & comm'l reprocessing	2010	2015	2020	2025	2030
Total LACW recycled	212	233	231	236	241
Recyclable C&I material sent for reprocessing	232	265	268	268	268
Recyclables intercepted at primary treatment facilities	0	16	31	31	31
Total recyclables sent for reprocessing	444	515	529	534	539
Total mixed reprocessing capacity	926	926	926	926	926
Coreprocessing capacity mass balance	**482**	**411**	**397**	**392**	**387**
Separately reprocessed C&I waste	168	156	157	157	157
Specialisted C&I waste reprocessing capacity	469	469	469	469	469
Separate reprocessing capacity mass balance	**301**	**313**	**312**	**312**	**312**

LANDFILL PRE-TREATMENT NEED — All figures in 000 tonnes

Pre-treatment requirement	2010	2015	2020	2025	2030
LACW sent to landfill	537	145	16	16	16
Pretreatment capacity at council-run WTSs	1150	1150	1150	1150	1150
Council WTS pre-treatment capacity mass balance	**707**	**1006**	**1134**	**1134**	**1134**

COMMERCIAL ARISINGS & MANAGEMENT — All figures in 000 tonnes

Commercial - key targets & assumptions	2010	2015	2020	2025	2030
Estimated total waste arisings	**714**	**705**	**711**	**711**	**711**
Forecast (achieved) recycling and composting rate	59%	65%	65%	65%	65%
Recycling share of out-turn or target	95%	92%	92%	92%	92%
Share of commercial waste suitable for co-treatment	79%	77%	77%	77%	77%
Share of commercial waste suitable for recycling with similar LACW	58%	63%	63%	63%	63%

Commercial arisings by management	2010	2015	2020	2025	2030
Commercial waste recycled	400	421	425	425	425
C&I waste available for composting	30	51	51	51	51
Commercial waste to be recycled with similar LACW	232	265	268	268	268
Commercial waste to be recycled separately from LACW	168	156	157	157	157
Merchant waste transfer station capacity	816	816	816	816	816
Commercial waste transfer mass balance	**416**	**395**	**391**	**391**	**391**
Diverted commercial waste requiring treatment	0	106	199	199	199
Diverted waste capable of being co-treated with similar LACW	0	81	153	153	153
Industrial waste co-treated with commercial (and LACW)	1	14	26	26	26
C&I waste sent to primary treatment	1	81	153	153	153
C&I waste sent direct to secondary treatment	0	14	27	27	27
Diverted C&I waste requiring separate treatment	0	24	46	46	46
Commercial waste sent to landfill (and requiring pre-treatment)	284	127	36	36	36
C&I waste landfilled due to lack of treatment capacity	0	0	0	0	0

PRIMARY TREATMENT

Primary treatment requirement	2010	2015	2020	2025	2030
Diverted LACW requiring primary treatment	0	0	0	0	0
Diverted C&I waste requiring treatment	1	81	153	153	153
Diverted LACW & C&I wastes to be co-treated	0	0	0	0	0
LACW to be treated separately in biomass facilities	0	0	0	0	0
C&I wastes to be treated separately in biomass facilities	1	81	153	153	153
C&I wastes to be treated separately in non-biomass facilities	0	24	46	46	46
Estimated co-treatment capacity	0	0	0	0	0
Separate LACW treatment capacity (biomass)	0	0	0	0	0
Separate C&I treatment capacity (biomass)	64	270	270	270	270
Separate C&I treatment capacity (non-biomass)	119	119	119	119	119
LACW or co-treatment capacity mass balance (biomass)	**0**	**0**	**0**	**0**	**0**
Separate C&I treatment capacity mass balance (biomass)	**63**	**189**	**117**	**117**	**117**
Separate C&I treatment capacity mass balance (nonbiomass)	**94**	**70**	**48**	**48**	**48**
Domestic food & kitchen waste composted	8	66	101	103	105
C&I food & kitchen waste composted	30	51	51	51	51
Agricultural sludges diverted to commercial AD treatment	0	0	0	0	0
Installed primary treatment capacity	0	0	0	0	0
Food & kitchen waste treatment capacity mass balance	**-37**	**-116**	**-152**	**-154**	**-156**
Treatment products and residues					
Combustible solid biomass (RDF/SRF, floc and fibre)	0	45	84	84	84
Digestate & liquid fertiliser	15	46	61	62	62
PAS100 standard organic compost	30	26	24	24	25
Biogas	0	0	0	0	0
Recyclables extracted and sent to reprocessing facilities	0	16	31	31	31
Inert residual material sent to landfill	2	13	22	22	22

SECONDARY TREATMENT

LACW secondary treatment requirement	2010	2015	2020	2025	2030
LACW sent directly to thermal treatment	0	292	375	383	391
Municipal EfW capacity	0	391	391	391	391
Municipal EfW capacity mass balance	**0**	**99**	**16**	**8**	**0**
Non-LACW secondary treatment requirement	**2010**	**2015**	**2020**	**2025**	**2030**
C&I waste sent directy to thermal treatment	0	14	27	27	27
Solid biomass fuelstock originating in Merseyside & Halton	0	45	84	84	84
Biomass mass-fired in conventional EfW facilities	0	21	32	32	32
Biomass fired in small/med. advanced thermal facilities	0	23	52	52	52
Specialised merchant EfW capacity	0	34	34	34	34
Large-scale conventional EfW capacity	0	375	375	375	375
Advanced thermal capacity	0	415	615	615	615
Total EfW capacity mass balance	**0**	**720**	**828**	**828**	**828**
Solid biomass fuelstock originating outside Merseyside & Halton	0	375	375	375	375
Treatment products and residues					
Energy output from all facilities (MW)	0	72	83	83	83
Heat output from all facilities (MW)	0	216	246	246	246
Total bottom ash generated	0	86	95	95	95
Bottom ash used as recyclate	0	22	95	95	95
Solid biomass sent to landfill due to lack of thermal capacity	0	0	0	0	0
Bottom ash unused and sent to landfill	0	65	0	0	0
Fly ash generated (APC residue sent to hazardous disposal site)	0	20	22	22	22

INDUSTRIAL ARISINGS & MANAGEMENT

All figures in 000 tonnes

Industrial - targets & management	2010	2015	2020	2025	2030
Estimated total waste arisings	**287**	**268**	**268**	**268**	**268**
Recycling - out-turn or target	59%	65%	65%	65%	65%
Incineration of industrial waste	0%	0%	0%	0%	0%
Recycled waste	169	175	175	175	175
Incinerated waste	0	0	0	0	0
Other diverted waste	3	40	75	75	75
Industrial waste to landfill	115	54	19	19	19

RECEIVING & SORTING RECYCLABLES

Industrial bulking requirement	2010	2015	2020	2025	2030
Industrial waste recycled	169	175	175	175	175
Available privately operated waste transfer capacity	416	395	391	391	391
Industrial recycling capacity mass balance	**247**	**220**	**217**	**217**	**217**
Reprocessing requirement	2010	2015	2020	2025	2030
Industrial waste recycled	161	161	161	161	161
Industrial waste composted	8	14	14	14	14
Estimated capacity for other recyclables	301	313	312	312	312
Industrial reprocessing capacity mass balance	**132**	**139**	**137**	**137**	**137**

TREATMENT OF INDUSTRIAL WASTES

Industrial treatment requirement	2010	2015	2020	2025	2030
Industrial waste diverted for treatment with commercial	1	14	26	26	26
Industrial waste diverted for separate non-thermal treat	2	26	49	49	49
Industrial waste treatment capacity (non-thermal)	48	48	48	48	48
Industrial non-thermal treatment capacity mass balance	**46**	**22**	**-1**	**-1**	**-1**
Industrial waste treated thermally	0	0	0	0	0
Industrial waste treatment capacity (thermal)	11	11	11	11	11
Industrial thermal treatment capacity mass balance	**11**	**11**	**11**	**11**	**11**
Treatment products and residues					
Energy output from all facilities (MW)	0	0	0	0	0
Heat output from all facilities (MW)	0	0	0	0	0
Bottom ash used as recyclate	0	0	0	0	0
Bottom ash unused and sent to landfill	0	0	0	0	0
Fly ash generated (to hazardous disposal site)	0	0	0	0	0

CD&E ARISINGS & MANAGEMENT

All figures in 000 tonnes

CD&E management need	2010	2015	2020	2025	2030
Estimated total arisings	**2207**	**2220**	**2267**	**2336**	**2371**
Waste beneficially re-used on-site	**794**	**943**	**1020**	**1168**	**1185**
Waste sent to WTS (off-site recycling)	**397**	**544**	**612**	**631**	**640**
Waste spread on exempt sites	**287**	**222**	**227**	**234**	**237**
Waste sent to landfill (engineering & restoration)	**44**	**67**	**68**	**70**	**71**
Waste sent to landfill (non-beneficial)	**419**	**266**	**159**	**163**	**166**

MANAGEMENT SUMMARY

CD&E management summary	2010	2015	2020	2025	2030
Total CD&E waste recycled on-site	794	943	1020	1168	1185
Total CD&E waste recycled off-site	397	544	612	631	640
Inert WTS capacity	1214	1214	1214	1214	1214
CDE offsite recycling capacity mass balance	**817**	**670**	**602**	**583**	**574**
CD&E waste spread on exempt sites	287	222	227	234	237
Availability capacity of known exempt sites	0	0	0	0	0
CD&E exempt site capacity mass balance	**-287**	**-222**	**-227**	**-234**	**-237**
Total CD&E waste sent to landfill	463	333	227	234	237

HAZARDOUS ARISINGS & MANAGEMENT

All figures in 000 tonnes

Hazardous management need	2010	2015	2020	2025	2030
Arising & treated locally	**40**	**37**	**37**	**37**	**37**
Imported for treatment	**118**	**118**	**118**	**118**	**118**
Total waste requiring management	**158**	**154**	**154**	**154**	**154**
Haz. recycling /treatment requirement	2010	2015	2020	2025	2025
Haz. waste landfill rate	10%	10%	10%	10%	10%
Haz. waste sent to landfill	16	15	15	15	15
Residual APC residues from treating MSW & commercial	0	20	22	22	22
Residual APC residues from treating industrial waste	0	0	0	0	0
Haz. waste landfill capacity	220	220	220	220	220
Haz. waste landfill capacity mass balance	**204**	**185**	**183**	**183**	**183**
Haz. waste treated or recycled	142	139	139	139	139
Haz. waste treatment capacity	389	389	389	389	389
Haz. waste treatment / recycling capacity mass balance	**247**	**250**	**250**	**250**	**250**

NON-HAZARDOUS LANDFILL

000 tonnes NOT LANDFILL VOID

Non-inert landfill need	**2010**	**2015**	**2020**	**2025**	**2030**
Undiverted LACW sent to landfill	537	145	16	16	16
Undiverted commercial waste sent to landfill	284	127	36	36	36
Industrial waste sent to co-disposal landfill	115	54	19	19	19
Untreated C&I waste landfilled due to lack of treatment plant	0	0	0	0	0
Unused RDF sent to landfill	0	0	0	0	0
CD&E waste sent to non-inert landfill (non-beneficial use)	21	13	8	8	8
Unrecycled bottom ash sent to landfill (LACW & comm.)	0	65	0	0	0
Unrecycled bottom ash sent to landfill (industrial)	0	0	0	0	0
Sub-regional landfill capacity	275	0	0	0	0
Contracted landfill capacity in the rest of the region	500	0	0	0	0
Non-inert landfill capacity mass balance	**-88**	**-338**	**-79**	**-79**	**-79**
Inert landfill used in engineering and restoration	44	67	68	70	71
Inert landfill requirement for beneficial use	80	0	0	0	0
Unused engineering material sent to landfill	0	0	0	0	0

Separate non-inert landfill need	**2010**	**2015**	**2020**	**2025**	**2030**
Commercial waste sent to non co-disposal landfill	0	0	0	0	0
Industrial waste sent to non co-disposal landfill	0	0	0	0	0
Sub-regional non co-disposal landfill capacity	59	59	50	0	0
Industrial landfill capacity mass balance	**59**	**59**	**50**	**0**	**0**

Inert landfill need	**2010**	**2015**	**2020**	**2025**	**2030**
Inert residual waste from LACW composting	4	3	3	3	3
Inert residual waste from LACW & commercial treatment	2	13	22	22	22
CD&E waste sent to inert landfill (non-beneficial use)	398	253	151	155	158
Surplus landfill engineering material	0	0	0	0	0
Sub-regional inert landfill capacity	0	570	298	201	0
Inert landfill capacity mass balance	**-404**	**236**	**123**	**21**	**-182**

APPENDIX C: ASSESSMENT RESULTS – PESSIMISTIC SCENARIO

LA-COLLECTED ARISINGS & MANAGEMENT

All figures in 000 tonnes

LACW - key targets & assumptions	2010	2015	2020	2025	2030
Estimated total waste arisings	**832**	**844**	**855**	**855**	**855**
Household recycling and composting rate	35%	45%	50%	50%	50%
Recycling share of out-turn or target	69%	55%	50%	50%	50%
LATS allowance (68% BMW)	**443**	**289**	**232**	**232**	**232**
Landfill allowance achievement	100%	50%	34%	15%	7%

LACW arisings by management & shares	2010	2015	2020	2025	2030
Household waste arisings	757	768	778	778	778
Non-household waste arisings	75	76	77	77	77
Household waste recycled	182	190	195	195	195
Non-household waste recycled	37	38	38	38	38
Household waste composted (green waste)	76	67	97	97	97
Household waste composted (kitchen/food waste)	8	89	97	97	97
LACW diverted to treatment	86	316	349	393	411
LACW diverted to primary treatment	0	0	0	0	0
LACW sent directly to secondary treatment	0	316	349	393	411
LACW sent to landfill requiring pre-treatment	443	145	79	35	16
LACW sent to landfill due to lack of treatment capacity	86	0	0	0	0

RECEIVING & SORTING OF RECYCLABLES

LACW - recycling & composting requirement	2010	2015	2020	2025	2030
Recycled LACW (excludes composted waste)	219	228	233	233	233
Proportion of recyclables collected from kerbside	60%	70%	75%	75%	75%
Household & nonhousehold recyclables taken to MRF	146	171	184	184	184
MRF capacity	200	200	200	200	200
MRF capacity mass balance	**54**	**29**	**16**	**16**	**16**
Other recycleables brought to HWRCs	69	53	45	45	45
HWRC capacity	240	240	240	240	240
HWRC capacity mass balance	**171**	**187**	**195**	**195**	**195**
Material collected from bring sites	4	4	4	4	4
Composted waste arisings - out-turn or target					
Green waste collected from kerbside or taken to HWRC	76	67	97	97	97
Green waste composting capacity	100	100	100	100	100
Green waste composting mass balance	**24**	**33**	**3**	**3**	**3**
Products and residues					
PAS100 standard organic compost	30	27	39	39	39
Inert material discarded from compostables	4	3	5	5	5

REPROCESSING RECYCLABLES

Combined LACW & comm'l reprocessing	2010	2015	2020	2025	2030
Total LACW recycled	219	228	233	233	233
Recyclable C&I material sent for reprocessing	232	265	282	289	289
Recyclables intercepted at primary treatment facilities	0	13	18	19	19
Total recyclables sent for reprocessing	451	506	533	541	541
Total mixed reprocessing capacity	926	926	926	926	926
Coreprocessing capacity mass balance	**475**	**420**	**393**	**385**	**385**
Separately reprocessed C&I waste	168	156	166	170	170
Specialisted C&I waste reprocessing capacity	469	469	469	469	469
Separate reprocessing capacity mass balance	**301**	**313**	**303**	**299**	**299**

LANDFILL PRE-TREATMENT NEED

All figures in 000 tonnes

Pre-treatment requirement	2010	2015	2020	2025	2030
LACW sent to landfill	529	145	79	35	16
Pretreatment capacity at council-run WTSs	1150	1150	1150	1150	1150
Council WTS pre-treatment capacity mass balance	**707**	**1006**	**1071**	**1115**	**1134**

COMMERCIAL ARISINGS & MANAGEMENT

All figures in 000 tonnes

Commercial - key targets & assumptions	2010	2015	2020	2025	2030
Estimated total waste arisings	**714**	**705**	**749**	**768**	**768**
Forecast (achieved) recycling and composting rate	59%	65%	65%	65%	65%
Recycling share of out-turn or target	95%	92%	92%	92%	92%
Share of commercial waste suitable for co-treatment	79%	77%	77%	77%	77%
Share of commercial waste suitable for recycling with similar MSW	58%	63%	63%	63%	63%

Commercial arisings by management	2010	2015	2020	2025	2030
Commercial waste recycled	400	421	448	459	459
C&I waste available for composting	30	52	54	55	55
Commercial waste to be recycled with similar LACW	232	265	282	289	289
Commercial waste to be recycled separately from LACW	168	156	166	170	170
Merchant waste transfer station capacity	816	816	816	816	816
Commercial waste transfer mass balance	**416**	**395**	**368**	**357**	**357**
Diverted commercial waste requiring treatment	0	106	150	154	154
Diverted waste capable of being co-treated with similar LACW	0	81	115	118	118
Industrial waste co-treated with commercial (and LACW)	0	15	21	21	21
C&I waste sent to primary treatment	0	65	91	93	93
C&I waste sent direct to secondary treatment	0	32	45	46	46
Diverted C&I waste requiring separate treatment	0	24	34	35	35
Commercial waste sent to landfill (and requiring pre-treatment)	284	126	97	100	100
C&I waste landfilled due to lack of treatment capacity	0	0	0	0	0

PRIMARY TREATMENT

Primary treatment requirement	2010	2015	2020	2025	2030
Diverted LACW requiring primary treatment	0	0	0	0	0
Diverted C&I waste requiring treatment	0	65	91	93	93
LACW & C&I wastes to be co-treated	0	0	0	0	0
LACW to be treated separately in biomass facilities	0	0	0	0	0
C&I wastes to be treated separately in biomass facilities	0	65	91	93	93
C&I wastes to be treated separately in non-biomass facilities	0	24	34	35	35
Estimated co-treatment capacity	0	0	0	0	0
Separate municipal treatment capacity (biomass)	0	0	0	0	0
Separate C&I treatment capacity (biomass)	0	270	270	270	270
Separate C&I treatment capacity (non-biomass)	119	119	119	119	119
LACW or co-treatment capacity mass balance (biomass)	**0**	**0**	**0**	**0**	**0**
Separate C&I treatment capacity mass balance (biomass)	**0**	**205**	**179**	**177**	**177**
Separate C&I treatment capacity mass balance (nonbiomass)	**94**	**70**	**60**	**59**	**59**
Domestic food & kitchen waste composted	8	89	97	97	97
C&I food & kitchen waste composted	30	52	54	55	55
Agricultural sludges diverted to commercial AD treatment	0	0	0	0	0
Installed primary treatment capacity	0	0	0	0	0
Food & kitchen waste treatment capacity mass balance	**-37**	**-141**	**-152**	**-153**	**-153**
Treatment products and residues					
Combustible solid biomass (RDF/SRF, floc and fibre)	0	36	50	51	51
Digestate & liquid fertiliser	15	56	61	61	61
PAS100 standard organic compost	30	27	39	39	39
Biogas	0	0	0	0	0
Recyclables extracted and sent to reprocessing facilities	0	13	18	19	19
Inert residual material sent to landfill	1	11	14	14	14

SECONDARY TREATMENT

LACW secondary treatment requirement	2010	2015	2020	2025	2030
LACW sent directly to thermal treatment	0	316	349	393	411
Municipal EfW capacity	0	411	411	411	411
Municipal EfW capacity mass balance	**0**	**96**	**63**	**19**	**0**
Non-municipal secondary treatment requirement	**2010**	**2015**	**2020**	**2025**	**2030**
C&I waste sent direct to thermal treatment	0	32	45	46	46
Solid biomass fuelstock originating in Merseyside & Halton	0	36	50	51	51
Biomass mass-fired in conventional EfW facilities	0	17	19	19	19
Biomass fired in small/med. advanced thermal facilities	0	19	31	32	32
Specialised merchant EfW capacity	0	34	34	34	34
Large-scale conventional EfW capacity	0	375	375	375	375
Advanced thermal capacity	0	415	615	615	615
Secondary treatment capacity mass balance	**0**	**720**	**878**	**875**	**875**
Solid biomass fuelstock originating outside Merseyside & Halton	0	375	375	375	375
Treatment products and residues					
Energy output from all facilities (MW)	0	73	76	76	76
Heat output from all facilities (MW)	0	216	225	227	227
Total bottom ash created	0	86	87	87	87
Bottom ash used as recyclate	0	0	0	0	0
Solid biomass sent to landfill due to lack of thermal capacity	0	0	0	0	0
Bottom ash unused and sent to landfill	0	86	87	87	87
Fly ash generated (APC residue sent to hazardous disposal site)	0	20	20	20	20

INDUSTRIAL ARISINGS & MANAGEMENT

All figures in 000 tonnes

Industrial - targets & management	2010	2015	2020	2025	2030
Estimated total waste arisings	**294**	**294**	**294**	**294**	**294**
Recycling - out-turn or target	59%	65%	65%	65%	65%
Incineration of industrial waste	0%	0%	0%	0%	0%
Recycled waste	173	191	191	191	191
Incinerated waste	0	0	0	0	0
Other diverted waste	0	44	59	59	59
Industrial waste to landfill	121	59	44	44	44

RECEIVING & SORTING RECYCLABLES

Industrial bulking requirement	2010	2015	2020	2025	2030
Industrial waste recycled	173	191	191	191	191
Available privately operated waste transfer capacity	416	395	368	357	357
Industrial recycling capacity mass balance	**243**	**203**	**177**	**166**	**166**
Reprocessing requirement	2010	2015	2020	2025	2030
Industrial waste recycled	165	176	176	176	176
Industrial waste composted	9	15	15	15	15
Estimated capacity for other recyclables	301	313	303	299	299
Industrial reprocessing capacity mass balance	**128**	**122**	**112**	**108**	**108**

TREATMENT OF INDUSTRIAL WASTES

Industrial treatment requirement	2010	2015	2020	2025	2030
Industrial waste diverted for treatment with commercial	0	15	21	21	21
Industrial waste diverted for separate non-thermal treat	0	29	38	38	38
Industrial waste treatment capacity (non-thermal)	48	48	48	48	48
Industrial non-thermal treatment capacity mass balance	**48**	**19**	**10**	**10**	**10**
Industrial waste treated thermally	0	0	0	0	0
Industrial waste treatment capacity (thermal)	11	11	11	11	11
Industrial thermal treatment capacity mass balance	**11**	**11**	**11**	**11**	**11**
Treatment products and residues					
Energy output from all facilities (MW)	0	0	0	0	0
Heat output from all facilities (MW)	0	0	0	0	0
Bottom ash used as recyclate	0	0	0	0	0
Bottom ash unused and sent to landfill	0	0	0	0	0
Fly ash generated (to hazardous disposal site)	0	0	0	0	0

CD&E ARISINGS & MANAGEMENT

All figures in 000 tonnes

CD&E management need	2010	2015	2020	2025	2030
Estimated total arisings	**2207**	**2220**	**2267**	**2336**	**2371**
Waste beneficially re-used on-site	**794**	**943**	**1020**	**1168**	**1185**
Waste sent to WTS (off-site recycling)	**397**	**544**	**612**	**631**	**640**
Waste spread on exempt sites	**287**	**222**	**227**	**234**	**237**
Waste sent to landfill (engineering & restoration)	**44**	**67**	**68**	**70**	**71**
Waste sent to landfill (non-beneficial)	**419**	**266**	**159**	**163**	**166**

MANAGEMENT SUMMARY

CD&E management summary	2010	2015	2020	2025	2030
Total CD&E waste recycled on-site	794	943	1020	1168	1185
Total CD&E waste recycled off-site	397	544	612	631	640
Inert WTS capacity	1289	1289	1289	1289	1289
CDE offsite recycling capacity mass balance	**892**	**745**	**677**	**658**	**649**
CD&E waste spread on exempt sites	287	222	227	234	237
Availability capacity of known exempt sites	0	0	0	0	0
CD&E exempt site capacity mass balance	**-287**	**-222**	**-227**	**-234**	**-237**
Total CD&E waste sent to landfill	463	333	227	234	237

HAZARDOUS ARISINGS & MANAGEMENT

All figures in 000 tonnes

Hazardous management need	2010	2015	2020	2025	2030
Arising & treated locally	**40**	**37**	**37**	**37**	**37**
Imported for treatment	**118**	**118**	**118**	**118**	**118**
Total waste requiring management	**158**	**154**	**154**	**154**	**154**
Haz. recycling /treatment requirement	2010	2015	2020	2025	2025
Haz. waste landfill rate	10%	10%	10%	10%	10%
Haz. waste sent to landfill	16	15	15	15	15
Residual APC residues from treating MSW & commercial	0	20	20	20	20
Residual APC residues from treating industrial waste	0	0	0	0	0
Haz. waste landfill capacity	220	220	220	220	220
Haz. waste landfill capacity mass balance	**204**	**185**	**185**	**185**	**185**
Haz. waste treated or recycled	142	139	139	139	139
Haz. waste treatment capacity	389	389	389	389	389
Haz. waste treatment / recycling capacity mass balance	**247**	**250**	**250**	**250**	**250**

NON-HAZARDOUS LANDFILL **000 tonnes NOT LANDFILL VOID**

Non-inert landfill need	**2010**	**2015**	**2020**	**2025**	**2030**
Undiverted LACW sent to landfill	529	145	79	35	16
Undiverted commercial waste sent to landfill	284	126	97	100	100
Industrial waste sent to co-disposal landfill	121	59	44	44	44
Untreated C&I waste landfilled due to lack of treatment plant	0	0	0	0	0
Unused RDF sent to landfill	0	0	0	0	0
CD&E waste sent to non-inert landfill (non-beneficial use)	63	40	24	25	25
Unrecycled bottom ash sent to landfill (LACW & comm.)	0	86	87	87	87
Unrecycled bottom ash sent to landfill (industrial)	0	0	0	0	0
Sub-regional landfill capacity	275	0	0	0	0
Contracted landfill capacity in the rest of the region	500	0	0	0	0
Non-inert landfill capacity mass balance	**-135**	**-455**	**-331**	**-291**	**-273**
Inert landfill used in engineering and restoration	44	67	68	70	71
Inert landfill requirement for beneficial use	80	0	0	0	0
Unused engineering material sent to landfill	0	0	0	0	0

Separate non-inert landfill need	**2010**	**2015**	**2020**	**2025**	**2030**
Commercial waste sent to non co-disposal landfill	0	0	0	0	0
Industrial waste sent to non co-disposal landfill	0	0	0	0	0
Sub-regional non co-disposal landfill capacity	59	59	50	0	0
Industrial landfill capacity mass balance	**59**	**59**	**50**	**0**	**0**

Inert landfill need	**2010**	**2015**	**2020**	**2025**	**2030**
Inert residual waste from LACW composting	4	3	5	5	5
Inert residual waste from LACW & commercial treatment	1	11	14	14	14
CD&E waste sent to inert landfill (non-beneficial use)	356	226	135	139	141
Surplus landfill engineering material	0	0	0	0	0
Sub-regional inert landfill capacity	0	570	298	201	0
Inert landfill capacity mass balance	**-362**	**330**	**144**	**43**	**-160**