



A2 Dominion

North West Bicester Masterplan Eco-
development

Sustainable Waste and Resources Plan (Masterplan)

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NW Bicester

Sustainable Waste and Resources Plan (Masterplan)

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1 Overview

This Sustainable Waste and Resources Plan (SWRP) relates to the North West (NW) Bicester Eco-development Masterplan, in accordance with the requirements of Planning Policy Statement (PPS1): Eco-towns (A supplement to PPS1), ET19 –Waste.

This SWRP sets targets for recycling and residual waste levels for the NW Bicester Masterplan Eco-development (hereinafter Development), the overall concept for waste management, and presents specific measures that if implemented will facilitate these targets being achieved (as required by PPS1). Progression of these measures will require ownership and support. The underlying assumption behind this SWRP is that support will be gained from Cherwell District Council (CDC) / Oxfordshire County Council (OCC). There may be opportunities to partner with third party organisations to implement some measures such as pilot projects in the future.

We recognise the opportunity to design a showcase waste management system across the Development in accordance with:

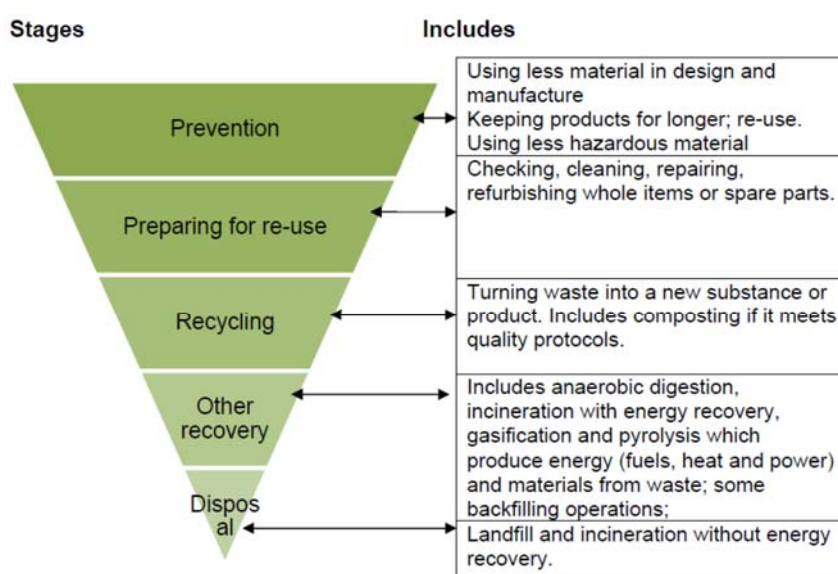
- The requirements set out in PPS1
- The existing high recycling performance achieved by CDC;
- Relevant waste targets already set, including those present in the Oxford Waste Partnership Joint Municipal Waste Management Strategy

Against this context, this SWRP sets out ambitious waste and recycling targets:

- For the percentage recycled/composted/reused: 70% from initial occupation; 80% by 2025
- For residual waste levels: 300 kg per household per year from initial occupation; 200 kg per household per year by 2025

In accordance with the waste hierarchy, waste reduction and reuse will be strongly encouraged, facilitated by community reuse centre(s), bring banks, provision of home composters, and additional community reuse/recycling projects (to be established).

Figure 1: Waste Hierarchy



The high recycling performance in CDC is achieved with an alternate weekly collection (residual waste is collected one week, and comingled recyclables and mixed organics are collected the other) and bring banks for glass. The existing council service will be provided to all households within the Development and supplemented with a number of measures including recycling banks, chargeable bulky waste collections and a composting incentive scheme (OWP has teamed up with getcomposting.com to offer Oxfordshire residents home composting bins at reduced prices).

Chargeable waste collection packages (standard recycler, good recycler and excellent recycler) are provided by CDC to all commercial premises.

In addition to these measures, this SWRP plan sets out how achievement of the targets will be facilitated through the design of the proposed development, in accordance with the standards for waste in the Code for Sustainable Homes (CSH).

2 Introduction

This Sustainable Waste and Resources Plan (SWRP) relates to the Development, in accordance with the requirements of Planning Policy Statement (PPS): Eco-towns (A supplement to PPS1), ET19–Waste.

While this SWRP is for the Masterplan, it will also inform (along with the Covering Reports for Application 1: North of Railway and Application 2: South of Railway) the context of waste management across the North and South of Railway.

ET19 requirements state that: Eco-town planning applications should include a sustainable waste and resources plan, covering both domestic and non-domestic waste¹, which:

- a** Sets targets for residual waste levels, recycling levels and landfill diversion, all of which should be substantially more ambitious than the 2007 National Waste Strategy targets for 2020²; it should be demonstrated how these targets will be achieved, monitored and maintained
- b** Establishes how all development will be designed so as to facilitate the achievement of these targets, including the provision of waste storage arrangements which allow for the separate collection of each of the seven priority waste materials as identified in the Waste Strategy for England 2007
- c** Provides evidence that consideration has been given to the use of locally generated waste as a fuel source for combined heat and power (CHP) generation for the eco-town
- d** Sets out how developers will ensure that no construction, demolition and excavation waste is sent to landfill, except for those types of waste where landfill is the least environmentally damaging option

This SWRP sets targets for recycling and residual waste levels for the Development, the overall concept for waste management, and presents specific measures that if implemented will facilitate these targets being achieved (as required by PPS1).

Progression of these measures will require ownership and support: the underlying assumption behind this SWRP is support from CDC and OCC in the continuation of alternate weekly collection (residual waste is collected one week, and comingled recyclables and mixed organics are collected the other) and strategic location of bring banks for glass and other suitable items such as textiles.

In addition, there may be opportunities to partner with third party organisations to implement other reduce, reuse and recycle schemes across the development.

¹This standard does not apply to health and social care services' medium and high risk waste, such as clinical and hazardous waste; these are covered by national regulations.

²⁷

²The Waste strategy 2007 proposes national targets for waste for 2020 as follows:

- Residual waste reduction per person (amount left after reuse, recycling and composting) – from 370 kg in 2005 to 225 kg in 2020

- Household re-use, recycling and composting – from 27% in 2005 to 50% in 2020

- Residual waste recovery (recycling, composting and energy recovery) from 38% in 2005 to 75% in 2020.

3 Background

3.1 PPS1 Eco-towns

The Planning Policy Statement: Eco-towns – A supplement to PPS1 is a programme of new towns, planned to deliver new housing whilst achieving high standards of sustainability.

The Government's objectives for planning are set out in the supplement and demonstrate how the Eco-towns will promote sustainability by:

- Ensuring that eco-towns achieve sustainability standards significantly above equivalent levels of development in existing towns and cities by setting out a range of challenging and stretching minimum standards for their development, in particular by:
 - Providing a good quantity of green space of the highest quality in close proximity to the natural environment
 - Offering opportunities for space within and around the dwellings
 - Promoting healthy and sustainable environments through 'Active Design' principles and healthy living choices
 - Enabling opportunities for infrastructure that make best use of technologies in energy generation and conservation in ways that are not always practical or economic in other developments
 - Delivering a locally appropriate mix of housing type and tenure to meet the needs of all income groups and household size, and
 - Taking advantage of significant economies of scale and increases in land value to deliver new technology and infrastructure such as for transport, energy and community facilities

3.2 The NW Bicester Masterplan Eco-development

The proposed Development site (subject to final confirmation) will comprise:

- At least 6,000 residential units;
- 3 to 4 primary schools;
- a secondary school;
- eco business centre;
- learning / innovation campus;
- extra care home;
- commercial and industrial units (classes B1 and B2);
- three energy centres;
- community hall/multi-faith centre;
- doctor and dentist surgery;
- other, e.g. library, visitors centre;
- nursery;
- a range of retail units (class A1 to A5);

- restaurants and public houses; and
- fitness and sport centre;

4 Legislative Framework

Targets and measures for achieving waste management are set out in this SWRP, and take into account current and emerging policies with direct relevance to the way in which waste must be managed at the Development.

Waste legislation originally focused on the disposal of waste, but since the introduction of the 2008 Waste Framework Directive, control has extended to include the storage, treatment, recycling and transport of waste. It is important to note that new legislation and amendments to existing legislation are introduced relatively frequently and the information provided here is correct as of March 2014.

Definition of Waste

The legal definition of waste is now embedded in the 2008 Waste Framework Directive. This guidance defines waste as “any substance or object..... which the producer or person in possession of discards, intends to discard or is required to discard”.

4.1 National and European

4.1.1 Waste Framework Directive, Adopted November 2008

The revised 2008 Waste Framework Directive (WFD) was adopted and published in the Official Journal of the European Union in November 2008 (L312/3) as Directive 2008/98/EC.

The WFD has established a framework for the management of waste across the EU and aims to encourage reuse and recycling of waste, as well as simplifying current legislation. It also defines certain terms, such as 'waste', 'recovery' and 'disposal', to ensure that a uniform approach is taken across the EU. Furthermore, it is an instrument for driving waste up the hierarchy through waste minimisation and increased levels of recycling and recovery. It sets out a number of procedures and criteria for construction, excavation and operational waste acceptance at landfills, including targets for the progressive reduction of biodegradable municipal waste (BMW) being sent for disposal in landfill.

4.1.2 European Landfill Directive (Directive 1999/31/EC on the landfill of waste)

The Directive aims to improve standards of set waste to landfill across Europe, by setting specific requirements for the design, operation and aftercare of landfills, and for the types of waste that can be accepted at landfill sites. It also aims to reduce the pollution potential from landfilled waste that can impact on surface water, groundwater, soil, air and also contribute to climate change. The Landfill Regulations 2002 have been replaced by the Environmental Permitting (England and Wales) Regulations 2007, further revoked by the Environmental Permitting (England and Wales) Regulations 2010, which, in England and Wales, now implement the European Landfill Directive.

This directive bans the landfilling of:

- Waste which is corrosive, oxidising, highly flammable, flammable or explosive
- Liquid hazardous waste, infectious hospital and other chemical wastes
- Whole used tyres (from 2003)

- Shredded tyres (from 2006)

The Directive classifies landfills as hazardous, non-hazardous, or inert and prevents the co-disposal of hazardous and non-hazardous waste after July 2004. It also requires that waste must be pre-treated before being landfilled and that landfill gas must be collected, treated and used to produce energy. This means that if the gas cannot be used, it must be flared.

4.1.3 Planning Policy Statement 10: Planning for Sustainable Waste Management, 2011

PPS10 was adopted in July 2005 and amended in March 2011. It encourages sustainable waste management through considering disposal as a last resort. PPS10 aims to break the link between economic growth and the effects of waste production. It assists in implementing the national waste strategy and supports the targets for recycling and recovery.

PPS10 promotes good design and layout of new developments to secure opportunities for sustainable waste management without creating adverse effects. It also recommends that new developments should be supported by Site Waste Management Plans (SWMPs). In December 2013, the SWMPs Regulations 2008 were repealed. However, the implementation of a SWMP remains industry best practice

A consultation seeking views on the draft of updated national waste planning policy for England, Planning for sustainable waste management closed on 23rd September 2013. At the time of writing, the Department for Communities and Local Government are in the process of analysing feedback. The intention is that this updated waste policy should replace PPS10 and sit alongside the new Waste Management Plan for England.

4.1.4 Waste Strategy for England 2007

The Waste Strategy for England (WSE) sets out a strategy for waste, continuing to follow the waste hierarchy, which prioritises waste management from the most favourable option 'reduction', through 're-use', 'recycling and composting', 'energy recovery' to the least favourable option of 'disposal'.

The key objectives of the Waste Strategy are to:

- Decouple waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use
- Meet and exceed the Landfill Directive diversion targets for biodegradable municipal waste in 2010, 2013 and 2020
- Increase diversion from landfill of non-municipal waste and secure better integration of treatment for municipal and non-municipal waste
- Secure the investment in infrastructure needed to divert waste from landfill and for the management of hazardous waste
- Get the most environmental benefit from that investment, through increased recycling of resources and recovery of energy from residual waste using a mix of technologies

4.1.5 Review of Waste Strategy for England 2007, 2011

The report contains actions and commitments, which set a clear direction towards a zero-waste economy. The Review presents the key principles in waste management policy: the waste

hierarchy, the diversion of waste away from landfill, producer and consumer responsibility, the proximity principle and the concept of Best Practicable Environmental Option (BPEO).

4.1.6 Landfill Tax

Landfill Tax is a fiscal mechanism employed in the UK to encourage diversion of waste from landfill. The previous chancellor announced an annual increase in the Landfill Tax escalator. The landfill Tax is presently £48 per tonne. The current escalator runs to 2013/2014, rising £8 per year. By 2014 landfill tax will reach £80 per tonne. Increasing the landfill tax makes investments in alternative non-landfill treatments more economically viable. It also addresses the issue of the declining availability of landfill space available.

In his March 2014 Budget, the Chancellor announced that the standard and lower rates of landfill tax are to rise in line with inflation from April 2015. However, longer term clarity over whether the rate will rise further beyond that date was not given.

4.1.7 Review of Waste Policy in England, 2011

The Review of Waste Policy in England sets out the Government's ambition and case for action for managing waste and resources in accordance with the WFD. The review indicates that the existing commitment to halve waste to landfill is on track to meet its 2012 target but that there will be a greater focus on waste reduction at the earlier, design stages as "this is where the largest environmental and financial savings can be made".

The report contains actions and commitments, which set a clear direction towards a zero-waste economy. The waste policy review (2011) presents the key principles in waste management policy: the waste hierarchy, the diversion of waste away from landfill, producer and consumer responsibility, the concept of Best Practicable Environmental Option and the proximity principle. This advocates that waste should be disposed of (or otherwise managed) close to the point at which it is generated, thus aiming to achieve responsible self-sufficiency at a regional/or sub regional level. Where this is not possible, priority should be given to transportation by rail or water.

4.1.8 Waste Management Plan for England, 2013

The plan is a requirement of Article 28 of the Waste Framework Directive and is a compilation of existing waste management information and policies. In particular, it reflects the conclusions of the Government Review of Waste Policy in 2011.

4.1.9 Strategy for Sustainable Construction, 2008

To deliver the Strategy, Government and industry have devised a set of overarching targets related to the 'ends' and 'means' of sustainable construction. The 'ends' relate directly to sustainability issues, such as climate change and biodiversity; the 'means' describe processes to help achieve the 'ends'.

By 2012, a 50% reduction of construction, demolition and excavation (CD&E) waste to landfill compared to 2008 was targeted. Although this baseline has now passed, the industry are still measuring their performance against the 2008 baseline (Waste Management Plan for England).

4.1.10 Waste (England and Wales) Regulations 2011, SI988

The new Waste (England and Wales) Regulations 2011 came into force on 29 March 2011. They update some aspects of waste controls set out in previous legislation. The need for waste permits and authorisations for certain activities therefore does not change. In summary, the regulations implement the revised WFD and:

- Require businesses to confirm that they have applied the waste management hierarchy when transferring waste, and to include a declaration to that effect on their waste transfer note or consignment note
- Require a new waste hierarchy permit condition and where appropriate a condition relating to mixing of hazardous waste
- Introduce a two-tier system for waste carrier and broker licences, which includes those who carry their own waste, and introduce the concept of a ‘waste dealer’
- Make amendments to hazardous waste controls and definition
- Exclude some categories of waste from waste controls, notably animal by-products, whilst incorporating a small number of radioactive waste materials

4.1.11 Duty of Care

The Duty of Care is set out in section 34 (1) of the Environmental Protection Act 1990 and imposes a duty on any person who is the holder of controlled waste. Any person/s who import, produce, carry, keep, treat or dispose of controlled waste, or as a broker has control of such waste, is subject to a Duty of Care whereby they must take all reasonable applicable measures:

- To prevent another person illegally treating, keeping, depositing or otherwise disposing of the waste
- To prevent the escape of waste
- To ensure that transfer of the waste only occurs to an “authorised person” and that the transfer is accompanied by a written description of the waste

The Environmental (Duty of Care) Regulations 1991 have been revoked by the Waste (England and Wales) Regulations SI 2011/988. Part 9 of these Regulations (SI 2011/988) now contains the equivalent provisions for England and Wales. These Regulations impose requirements under section 34 (5) of the 1990 Environmental Protection Act on any person who is subject to the Duty of Care in respect to the making and retention of documents and copies of them. Breach of these Regulations is a criminal offence. These Regulations do not apply to the occupier/s of domestic property.

4.1.12 Environmental Permitting (England and Wales) Regulations 2010

The Environmental Permitting Regulations (EPR) introduced a permitting and compliance regime, which deliver many of the requirements of the European Environmental Directives and of national policy.

The Schedules to the Regulations identify precise requirements, article by article, for each Directive which must be delivered through the permitting system. Each Directive covered by the Regime has a specific schedule. The most relevant for this project are:

- Part A installations and Part A mobile plant (the Integrated Pollution Prevention and Control Directive) - Schedule 7
- Domestic Part B installations and Part B mobile plant - Schedule 8. The Waste Framework Directive - Schedule 9: Waste Operations
- The Landfill Directive - Schedule 10: Landfill

4.1.13 Hazardous Waste Regulations

The Hazardous Waste (England and Wales) Regulations 2005 (HWR 2005) were amended on 6 April 2009. This principally widened the scope of the exemption from hazardous waste producer registration with the Environment Agency.

Where subcontractors produce hazardous waste, it will be removed under the Hazardous Waste Premises Registration for that site. All types of premises that produce hazardous waste are now exempt from registration if no more than 500kg of hazardous waste is produced in a year.

4.2 Local

Oxfordshire Waste Partnership's (OWP) vision to maximise waste prevention across the county until 2030 is set out in the OWP Joint Municipal Waste Management Strategy, which was adopted in 2007. There has been a subsequent update to the Strategy, adopted in 2013. Under the policies of the Strategy the OWP will:

- Encourage the efficient use of resources, reduce consumption and take responsibility for the waste that they produce
- Lobby central government to focus on waste as an integral part of sustainable resource management
- Help households and individuals to reduce and manage their waste in order to ensure zero growth or better of municipal waste per person per annum
- Provide an integrated system of collection and processing of household waste which will achieve, as a minimum:
 - By 31st March 2020: recycle or compost at least 65% of household waste
 - By 31st March 2025: recycle or compost at least 70% of household waste
- Ensure that recycling facilities and services are available to all residents
- Encourage businesses to reduce, reuse and recycle by providing good quality recycling services, information and advice
- Minimise waste to landfill and recover energy from non-recyclable waste through the operation of the Ardley Energy from Waste facility with the council seeking no more than 5% of non-recyclable household waste
- Provide waste management services for specialised, potentially polluting material streams such as hazardous waste and waste electrical and electronic equipment, which as a minimum meet legislative requirements
- Working with the Waste Planning Authority, will ensure that waste facilities are suitably sized and distributed with the aim of minimising the transport of waste. Facilities will be well related to areas of the population, given the environmental and amenity constraints and the availability of suitable sites
- Assist the development of local markets for recovered materials

- Work together to improve local environmental quality through effective communications and enforcement activity

CDC has a recycling pledge of 57% in 2013/2014. It is noted in the Waste Strategy Report of Head of Environmental Services dated 8th April 2013, that the recycling targets listed above are considerably greater than this pledge however, according to the report a great number of activities commenced in 2012 and are continuing into 2013 to try and drive recycling rates forward. It is noted that to achieve a performance around 65% by 2020 will require a significant performance improvement.

The OWP will cease to exist in the summer of 2014 following funding cuts from OCC.

4.3 Eco-town specific

The requirements for the management of waste at Eco-towns are set out in Planning Policy Statement (PPS): Eco-towns (A supplement to PPS1), ET19–Waste - see section 1.

5 Existing system and performance

The targets in this SWRP and measures to achieve them take into account the existing waste management system provided by CDC and OCC and its performance.

5.1 Current waste and recycling collection system

Currently an alternating weekly collection system for the properties in the district is provided. In 2012 this represented 59,240 households. For households, residual waste is collected on one week and co-mingled dry recyclables and mixed organics are collected the following week.

Table 1: Waste collections for households (kerbside collection)

Waste stream	Waste type	Collection arrangements
Co-mingled dry recyclables	paper, tins and drink cans, cardboard, magazines and newspapers, aerosols and plastic bottles and containers	Blue bins collected fortnightly with mixed organics
Mixed organics	food: waste cooked and uncooked, plants, leaves, grass cuttings, pet straw and sawdust, pruning waste and cut flowers	Brown bins collected fortnightly with co-mingled dry recyclables
Residual waste (i.e. anything cannot be recycled or composted)	disposable nappies, polystyrene and cling film	Green bins Collected fortnightly
Batteries and small WEE	toasters, hairdryers, kettles, irons, mobile phones and stereos	Kerbside collection weekly, placing the bag on one of the bins
Other	Glass, textiles and DVDs	Bring banks

Table 2: Waste collections for residents of flats (communal bin stores)

Waste stream	Waste type	Collection arrangements
Co-mingled dry recyclables	paper, tins and drink cans, cardboard, magazines and newspapers, aerosols and plastic bottles and containers	Blue bins collected fortnightly with mixed organics
Mixed organics	food: waste cooked and uncooked, plants, leaves, grass cuttings, pet straw and sawdust, pruning waste and cut flowers	Brown bins collected fortnightly with co-mingled dry recyclables
Residual waste (i.e. anything cannot be recycled or composted)	disposable nappies, polystyrene and cling film	Green bins Collected fortnightly
Glass	Glass bottles and jars	Black bins – on some developments only

Waste stream	Waste type	Collection arrangements
Other	Batteries and small WEE, textiles and DVDs Glass (if black bins are not provided)	Bring banks

A chargeable bulky waste collections service is provided to all residents for items such as furniture and white goods.

Most dry recyclables are currently delivered to M&M Materials Recovery Facility (MRF) in Witney, Oxfordshire (approximately 90%). The other 10% to Cheshire transfer station from where it is transferred to UPM MRF in Deeside.

CDC rolled out food collection services in October 2009, with everyone in the district being served by April 2010. The mixed garden waste and food waste goes to an in vessel composting facility (IVC) at Ardley (operated by Agrivert). This is in year three of a 15 year agreement.

Most residual waste goes to Ardley Landfill. Residual waste generated in the north of the district goes to Banbury Waste Transfer station and then to Calvert in Buckinghamshire.

In March 2011, OCC awarded a 25 year contract for residual waste treatment to Viridor Oxfordshire Ltd. From 2014/15 all residual waste will be burnt to produce electricity at the new £200m energy from waste facility being built at Ardley in north Oxfordshire which will:

- Have capacity to treat 300,000 tonnes of waste per year – sufficient to treat all of Oxfordshire's residual municipal waste
- Divert at least 95% of Oxfordshire's residual municipal waste from landfill

5.2 System performance

5.2.1 Recycling rates

[WasteDataFlow](#) is the web based system for municipal waste data reporting by UK local authorities to government. This resource has been interrogated to determine the current CDC baseline in terms of Household (HH) Waste, Residual Waste and Recycling Rates.

Table 3: CDC waste arisings data and recycling, composting and reuse rates

Metric	2006/ 07	2007/ 08)	2008/ 09	2009/ 10	2010/ 11	2011/ 12	2012/ 13
Total HH waste (t)	59,131	59,206	58,605	57,598	57,225	57,020	57,380
Residual waste per household (kg)	572	538	509	480	415	413	436
Total residual HH waste (t)	32,741	31,106	29,501	28,018	24,329	24,367	25,908
Total waste sent for recycling, composting or reuse (%)	45%	47%	50%	51%	57%	57%	55%

Source: *WasteDataFlow*

This data reports that CDC achieved a recycling, composting and reuse rate of 54.85% in 2012/13. This performance is compared against regional and national performance in the table below. From this it is clear that CDC recycling, composting and reuse rates are well above the England average.

Table 4: Recycling rates

Area	2010/11	2011/12	2012/13
CDC	57%	57%	55%
Oxfordshire	54%	60%	60%
England	40%	42%	42%

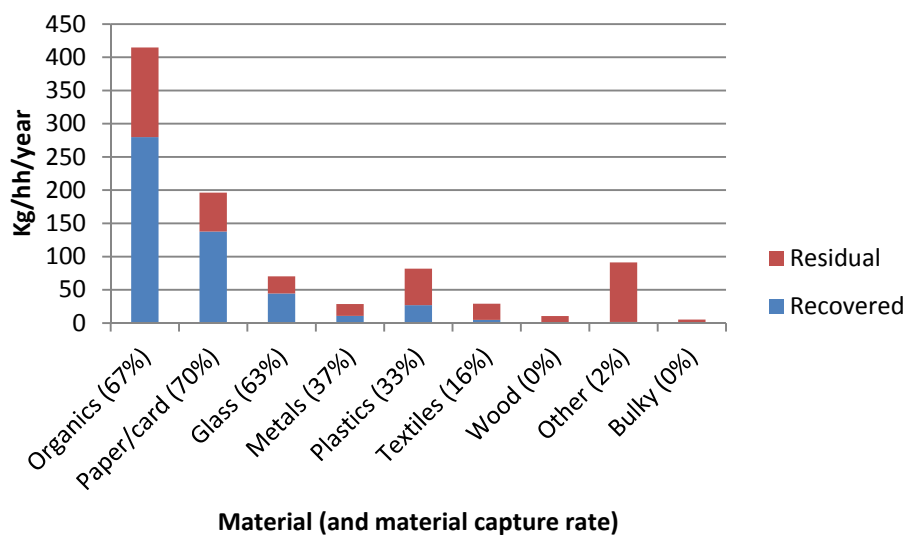
Source: *WasteDataFlow*

5.2.2 Material recovery

An estimate of individual material capture rates has been put together using actual waste and recycling data provided by CDC and WasteDataFlow and compositional data for CDC in a recent audit (Oxfordshire Waste and Partnership two Season Waste Composition Report, SKM Enviros, 2010). The estimate is based on 2012/13 material capture data as it is the most recent full year's data in WasteDataFlow.

Materials are listed according to the seven priority materials listed in the WSE 2007, bulky waste (which could highlight opportunities for reuse) and other waste (which includes non-recyclable items such as nappies, household hazardous waste etc.).

Figure 2: Material capture rates



6 Targets

PPS1 requires that waste and recycling targets set for Eco-towns should be substantially more ambitious than the 2007 national Waste Strategy targets for 2020. Targets should be set for waste levels, recycling levels and landfill diversion.

6.1 Targets to which NW Bicester Masterplan Eco-development is subject

WSE 2007

- 45% recycling rate by 2015
- 50% recycling rate by 2020

- 225kg per person of residual waste by 2020

Oxfordshire Waste Partnership

- By 31st March 2020: recycle or compost at least 65% of household waste
- By 31st March 2025: recycle or compost at least 70% of household waste

6.2 Current performance against targets

In 2012/13 CDC achieved a recycling, composting and reuse rate of 55%. This is a drop of nearly 3% from the 57% recycling rate achieved in 2011/12.

Despite this recent drop in recycling, composting and reuse rates, CDC has already exceeded all targets as detailed in the WSE 2007.

CDC has a recycling pledge of 57% in 2013/2014. It is noted in the Waste Strategy Report of Head of Environmental Services dated 8th April 2013, that the OWP recycling targets listed above are considerably greater than this pledge however, according to the report a great number of activities commenced in 2012 and 2013 to continue to drive recycling rates forward. It is noted that to achieve a performance around 65% by 2020 will require a significant performance improvement.

In 2012/13, CDC achieved a residual household wastage rate of 436 kg per household. Despite an increase from 413 kg per household in 2011/12, current performance is still meeting the targets detailed in the WSE 2007.

6.4 NW Bicester Masterplan Eco-development waste and recycling targets

To deliver the high sustainability credentials, the Development must not only meet and exceed the WSE 2007 and OWP targets, but must also achieve and seek to exceed the high performance already being achieved within the district.

A number of material capture scenarios were investigated to assess potential performance (see Table 5 below).

Scenario 1

This is estimated to be the current scenario: with all material recovery rates as per Table 5 and organic waste recovery increased to achieve the overall recycling rate; including recent improvement to the food waste collection service.

Scenario 2

This scenario assumes material capture rates equivalent to the current maximum dry recyclables capture rate (65%) are achieved, with the exception of organic waste where capture is 84%, and 'other' (which includes WEEE and household hazardous wastes) where capture is increased to 10%

Scenario 3

This scenario assumes a 100% participation, and that both organics streams (garden waste and food) achieve 92% capture (as estimated to be the current capture rate for garden waste, and that 'other' waste achieve a 20% capture rate. A capture rate of 80% is assumed for all other scenarios.

Table 5 Material capture rate scenarios

Material	2012/13	Scenario 1 (Current)	Scenario 2	Scenario 3
Organic	67%	88%	84%	92%
Paper/card	70%	65%	65%	80%
Glass	63%	36%	65%	80%
Metals	37%	38%	65%	80%
Plastics	33%	30%	65%	80%
Textiles	16%	16%	65%	80%
Wood	0%	0%	65%	80%
Other	2%	2%	12%	22%
Bulky	0%	0%	65%	80%
Recycling rate	55%	60%	68%	80%
Total recycling (kg/hh)	506.12	560.95	632.08	739.22
Total residual (kg/hh)	421.75	366.92	295.79	190.48

Based on current recycling performance of CDC, and the analysis of potential capture of individual materials, the following ambitious targets have been set for the Development:

For the percentage recycled/composted/reused

- 70% from initial occupation
- 80% by 2025

For residual waste levels

- 300 kg per household per year (120kg per person per year) from initial occupation
- 200 kg per household per year (80kg per person per year)by 2025

Reducing waste levels

In addition to the scenarios detailed above for recycling targets, measures to reduce and reuse quantities of recyclable materials will have a significant impact on total waste production. Initiatives that focus on waste minimisation strategies are extremely difficult to quantify, however future sustained communications drives and education programmes conducted by CDC and the Development community governance company are likely to further reduce the residual fractions in all three scenarios that are sent to landfill.³

Whilst the majority of waste from the development will be household waste, the reuse, recycling and composting targets will apply to all sources of municipal waste across the Development including: schools waste and commercial waste.

³http://www.wrap.org.uk/local_authorities/research_guidance/monitoring_and_evaluation_guidance/

7 How the targets will be achieved, monitored and maintained

The kerbside collection services and bring banks, currently provided by CDC, will be extended to residents and public facilities across the Development.

7.1 Supplementary measures

In order to further increase performance beyond current CDC levels, and achieve and maintain the targets set out above, the service could be supplemented by a number of measures

- Kerbside and bring bank recycle bins
- Re-use centres
- Home/community composting
- Ongoing awareness and education campaigns
- Performance based charging.

The opportunity to include these measures is further discussed below

7.1.1 Kerbside collection service

Households

Households will be provided with CDC's three bin alternate weekly system:

- A brown 240 litre wheeled bin for mixed organics
- A blue 240 litre wheeled bin for co-mingled recyclables
- A green 180 litre wheeled bin for residual waste.

Kitchen caddies will be provided to all residents for food waste.

Space for internal storage of materials, prior to depositing in outside wheeled bins will be provided for three waste streams: comingled recyclables; other recyclables for bring banks and residual waste.

Flats

Flats will be provided with CDC's system for flats:

- Brown 240 litre wheeled bins for mixed organics
- Blue 240 litre wheeled bins for co-mingled recyclables
- Green 240 litre wheeled bins for residual waste.

Kitchen caddies will be provided to all residents for food waste.

Space for internal storage of materials, prior to depositing in outside wheeled bins will be provided for three waste streams: comingled recyclables; other recyclables for bring banks and residual waste. Reusable bags will be provided for transporting recyclables to the communal facilities.

7.1.2 Bring banks

Provisions for glass collection will be equivalent to those already provided by CDC i.e. appropriate bring banks will be located within the development for use by all residents.

Bring banks will also be supplied for cans, WEE items, DVDs and CDs, textiles, shoes, scrap metal and batteries.

7.1.3 Community reuse centre(s)

Emphasis will be given to the importance of waste prevention and reuse. The existing centre for sustainability, skills and second hand stuff, Bicester Green, will be utilised by residents. As Development continues to develop, the creation of an additional community reuse centre may be required in order to ensure facilities are sufficient. It is anticipated that any additional centre may be run and/or managed by a Social/Community enterprise.

Social enterprise / Local Authorities partnerships are becoming increasingly successful in the provision of bulky waste collection services. They often provide more than simply a waste collection service and in addition provide repair services and training / volunteering opportunities thus linking to PPS1 E10 which requires job creation within the town.

It is anticipated that in addition to bulky waste, Bicester Green any additional centre would be the focal point for any non-regular wastes (with the exception of healthcare waste) generated across the site and will provide drop off points or arrange collections for textiles, non-bulky wood waste, books and toys.

7.1.4 Home and community composting

Composting of green waste will be encouraged at the Development. A free home composting unit will be available to residents as they move in for anyone wishing to participate. Regular mixed organics collections will still be provided to those who don't or require additional collections.

Community composting will also be encouraged, and land will be available within the green space provision to accommodate small scale community composting projects. This would need to be 'championed' by community groups and/or a social enterprise to facilitate/provide the service.

7.1.5 On-going education and support campaigns

Fundamental to the achievement of the targets set out in this SWRP is community awareness through appropriate publicity and education. Residents will be actively encouraged to participate in achieving the targets, which are significantly higher than previously experienced.

As well as resources being required to implement all the above measures, it is recommended that a sustainability advisor be available or on-call to support the Development to provide useful practical advice to residents and businesses. This advisory role will be funded by a contribution from the Developer.

All new residents will be provided with a welcome pack that will include the key messages with regard to the waste management system and targets. Education, support and awareness will

need to be on-going and should be reported back to residents through public forums. These forums will be funded by a contribution from the Developer.

7.1.6 Performance based charging

A number of different potential charging models exist, ranging from performance based charging systems to incentivise recycling, to charging for residuals disposal. Such systems may be considered alongside the measures discussed above to further promote/incentivise waste reduction and management.

A performance based charging scheme would require bins to be chipped and for the CDC waste collection vehicles servicing the Development to be fitted with bin weighing equipment. In previous conversations, CDC have confirmed that this is possible, and that bin weighing equipment could be installed at minimal additional cost.

For households the performance based charging system would be applied individually, and to flats, where communal facilities are provided, an average charge will be applied (dependant on communal performance and the number of residents per household).

While the details for such a system are beyond the requirements of this plan, the following is recommended:

- Charges based on residual waste and co-mingled recyclables so as not to dissuade home / community composting.
- Performance is linked to the percentage of dry recycling of the total kerbside collected material (not including organics), as opposed to direct quantity, so as not to 'penalise' those not generating as much recyclable waste
- The system is accompanied by a comprehensive education programme to ensure that amounts of contaminants in the recyclable stream does not increase

For a scheme of this nature to be implemented, CDC would need to commit to installing the additional bin weighing devices on their collection lorry and the necessary administrative and council tax reduction/rebate mechanism.

7.2 Commercial waste

Commercial premises will be required to meet the same recycling target as households. Each commercial operation will be required to produce a waste management plan to identify how the targets are to be achieved. In line with the Waste Regulations 2011, there will be a requirement on all commercial premises to separate waste paper, metal, plastic or glass for recycling.

Bin types and sizes will be allocated according to the type of premises. Commercial waste reduction will be undertaken based on the type of enterprise and the type of waste produced. Retail / business units and the proposed education centres are likely to have a high percentage of paper and card which is able to be accommodated.

Private arrangements will be made for adhoc wastes such as small quantities of hazardous waste and medical waste.

7.3 Monitoring

CDC waste and recycling collection vehicles are currently fitted with weighing equipment for the purpose of monitoring the load of each vehicle; therefore waste and recyclable arisings can be

monitored on a development-wide basis. Readings should be taken before and after servicing the development. It is likely that this would happen periodically as opposed to each service.

In addition, periodic residual waste audits will be carried out to identify opportunities to increase material capture. These audits will be funded through a Developer contribution.

8 Facilitating performance by design

The achievement of the targets set out in this plan will be facilitated through the design of the development, both at the kerbside and for communal facilities. Also considered are the design requirements of the CSH.

8.1 Internal storage

Kitchens will incorporate storage for three waste streams: comingled recyclables; other recyclables for bring banks, and residual waste. Kitchen caddies will be provided for food waste: these will not require fixed storage space.

8.2 External storage

Kerbside properties will be provided with external storage space for three wheeled bins, as in accordance with the existing CDC kerbside collection scheme:

- 1 x 240 litre wheeled bin for mixed organics
- 1 x 240 litre wheeled bin for co-mingled recyclables
- 1 x 180 litre wheeled bin for residual waste

Flats will be provided with communal facilities consisting of 240 litres wheeled bins for each material stream.

8.3 Additional design requirements

8.3.1 Bring facilities

Communal facilities will be provided for glass and textiles, and bulky waste. The exact locations will be determined at reserved matters stage and in conjunction with CDC.

8.3.2 Composting

Land will be provided within the 40% open space allowance to accommodate community composting. In addition, every home (with garden) will be provided with a composting unit available for residents that wish to undertake green waste recycling at home.

8.4 Storage and collection of the priority waste materials

PPS1 requires the provision of waste storage arrangements which allow for the separate collection of each of the seven priority waste materials as identified in the Waste Strategy for England 2007: organics, plastics, glass, metals, paper/card, wood and textiles.

In order to utilise the already high performing waste collection system provided by CDC, this SWRP proposes to store and collect plastics, metals and paper/card as co-mingled recyclables. Glass will be stored separately to facilitate the taking of this material to bring banks.

Food and garden waste would be collected as mixed organics and stored/collected separately. Residents will have the opportunity to home compost organics, and it is anticipated that community composting schemes will be established throughout the masterplan area.

It is anticipated that a Social enterprise would be commissioned to operate the bulky waste collection service and potentially run a swap shop making connections with the established Grassroots Bicester 'Freecycle Live' model, the existing community reuse centre for sustainability, skills and second hand stuff at Bicester Green and any future Community reuse facilities.

8.5 Code for Sustainable Homes.

The CSH provides a comprehensive measure of the sustainability of new homes, ensuring that sustainable homes deliver real improvements in key areas including waste.

Dwellings are rated on a scale from Level 1 to Level 6, where level 6 is the highest. For each design category there are mandatory standards, on top of which each scores a number of percentage points.

The CSH assigns one or more performance requirements (assessment criteria) to all of the environmental issues. When each performance requirement is achieved, a credit is awarded (except the four mandatory requirements with no associated credits). The total number of credit available to a Category is the sum of credits available for all the issues within it.

Mandatory minimum performance standards are set for some issues. For four of these, a single mandatory requirement is set which must be met, whatever CSH level rating is sought. Credits are not awarded for these issues. Confirmation that the performance requirements are met for all four is a minimum entry requirement for achieving a level 1 rating.

Further credits are available on a free-choice or tradable basis from other issues so that the developer may choose how to add performance credits (converted through weighting to percentage points) achieve the rating which they are aiming for.

Storage of non-recyclable waste and recyclable household waste is one of the unaccredited issues, for which a maximum number of tradable credits is four. Composting, is also allocated one tradable credit.

Table 6, below, sets out how the development design meets the CSH standards⁴ and includes comments for how these standards will be met, or where an alternative will be provided.

⁴ Code For Sustainable Homes Technical Guide Version 2, Communities and Local Government (2009)

Table 6: CSH Standards and comments

Criteria	Credits available	Comment
<p>Storage of household waste</p> <p>The space allocated for waste storage should be able to accommodate containers with at least the minimum volume recommended by British Standard 5906 (British Standards, 2005) based on a maximum collection frequency of once per week. This is 100 litres volume for a single bedroom dwelling, with a further 70 litres volume for each additional bedroom.</p> <p>A Local Authority recycling scheme offering containers equal to or greater than this volume would meet the requirement, providing adequate external space is allocated to accommodate them.</p> <p>If the Local Authority provides containers with a smaller volume, or if no Local Authority scheme exists, the developer will need to ensure and demonstrate that the minimum volume according to BS 5906 2005 and defined above, is met.</p> <p>All containers must be accessible to disabled people (checklist Was 1), particularly wheelchair users, and sited on a hard, level surface. To ensure easy access, the containers must not be stacked.</p>	<p>Mandatory</p> <p>No credits available</p>	<p>The minimum performance standard for Storage of non-recyclable waste and recyclable household waste would be met through providing the CDC waste and recycling system, which meets this standard.</p>
<p>Storage of recyclable household waste</p> <p>Dedicated internal storage for recyclable household waste can be credited where there is no (or insufficient) dedicated external storage capacity for recyclable material, no Local Authority collection scheme and where the following criteria are met:</p> <p>At least, three internal storage bins:</p> <ul style="list-style-type: none"> ▪ All located in an adequate internal space ▪ No individual bin smaller than 15 litres ▪ With a minimum total capacity 60 litres 	<p>Credits available: 2</p>	<p>Not applicable</p>

<p>A combination of internal storage capacity provided in an adequate internal space, with either:</p> <ul style="list-style-type: none"> ▪ A Local Authority collection scheme; or ▪ No Local Authority collection scheme but adequate external storage capacity. <p>Local Authority Collection Scheme</p> <p>In addition to a Local Authority Collection Scheme (with a collection frequency of at least fortnightly) at least one of the following requirements must be met:</p> <ul style="list-style-type: none"> ▪ Where recyclable household waste is sorted after collection and at least a single 30 litre bin is provided in an adequate internal space. ▪ Where materials are sorted before collection and at least three separate bins ▪ Are provided with 30 litres total capacity. Every bin must have a capacity of at least 7 litres and be located in an adequate internal space. ▪ An automated waste collection system which collects at least 3 different types of recyclable waste. <p>No Local Authority collection scheme but adequate external storage capacity</p> <p>For houses and flats, there must be at least 3 identifiably different internal storage bins for recyclable waste, located in an adequate internal space:</p> <ul style="list-style-type: none"> ▪ With a minimum total capacity of 30 litres ▪ Where every bin has at least 7 litres capacity <p>AND</p> <p>For houses, an adequate external space must be provided for storing, at least,</p> <p>three external bins for recyclable waste:</p> <ul style="list-style-type: none"> ▪ With a minimum total capacity of 180 litres ▪ With no bin smaller than 40 litres ▪ All bins should be located within 30m* of an external door <p>For blocks of flats, a private recycling scheme operator must be appointed to maintain bins and collect recyclable waste regularly. Recycling containers must:</p> <ul style="list-style-type: none"> ▪ Be located in an adequate external space ▪ Be sized according to the frequency of collection, based on guidance from the recycling scheme operator ▪ Store at least 3 types of recyclable waste in identifiably different bins ▪ Be located within 30m* of an external door <p>* Where strategic reasons outside the control of the developer make it impossible to meet this requirement, the maximum allowable distance is 50m, and a written</p>	<p>Credits available: 4</p>	<p>The CDC collection scheme will be provided</p> <p>Comingled recyclables will be sorted after collection. Internal storage will be provided for comingled recyclables in both houses and flatted properties and will accommodate a minimum of a total capacity of 30 litres. Glass will be sorted before collection. Internal storage for glass will accommodate a minimum container size of 7 litres. Food waste will also be sorted prior to collection. Internal storage will be in kitchen caddies which will not require fixed storage.</p> <p>External storage will be provided for 2 x 240 litre bins for recyclables (comingled and mixed organics). In place of a third bin, glass will be taken to bring facilities.</p> <p>Flats will be serviced as per the CDC flats waste and recyclables service.</p>
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Justification must be provided to the Code Service Provider.

<p>Composting</p> <ul style="list-style-type: none"> ▪ Individual home composting facilities. <p>OR</p> <ul style="list-style-type: none"> ▪ A local communal or community composting service, which the Local Authority runs or where there is a management plan in place. <p>OR</p> <ul style="list-style-type: none"> ▪ A Local Authority green/kitchen waste collection system (this can include an automated waste collection system). <p>All facilities must also:</p> <ul style="list-style-type: none"> ▪ Be in a dedicated position ▪ Be accessible to disabled people ▪ Have an information leaflet that is delivered to each dwelling 	<p>Credits available: 1</p>	<p>Space will be allocated for community composting projects</p> <p>All houses with gardens and/or allotments will be provided with home composting units in addition to a kerbside green waste collection service.</p>
<p><u>Definitions</u></p> <p>Adequate External Space</p> <p>Refers to outdoor space supplied for storing non-recyclable waste and recyclable materials. External recycling bins should be located on level hard standing and must be covered and within a reasonable distance of the external door to the dwelling / block of flats.</p> <p>Adequate Internal Space</p> <p>Refers to indoor space supplied for storing non-recyclable waste and recyclable materials. Internal recycling bins should be located in a dedicated non obstructive position. This should be in a cupboard in the kitchen, close to the non-recyclable waste bin, or located adjacent to the kitchen in a utility room or connected garage. Free-standing recycling bins placed directly on the floor or in a cupboard do not comply.</p>		

9 Consideration of waste to energy

The Ardley Energy from Waste plant has been constructed and is due to be fully operational in September 2014. Discussions with Viridor (the Ardley EfW plant operator) confirmed that the installation will have a generation capacity of 26MWe, which equates to approximately 17MW_{th} of heat.

Utilisation of this heat directly on the Development site would require a connecting pipe to distribute the waste heat from the Ardley site to the development. This heat connection infrastructure is a significant issue as, to connect the Ardley EfW plant to the development site, the route will need to cross the M40 motorway and possibly the railway line. These will be significant obstacles to cross, over a distance of at least 2.8km; and would require various easements to be negotiated; and incur significant cost (with typical costs of between £1000 to £1500 per meter, based upon soft and hard areas of trenching respectively). This cost and potential ransoms to enable this connecting pipe are significant, however, this options would meet the thermal demands of the development in a carbon neutral way.

A funded route analysis project is currently been undertaken by CDC to further explore the viability and feasibility of piping the waste heat towards Bicester. The energy strategy for the NW Bicester site incorporates a District Heat Network and is therefore compatible with receiving waste heat from Ardley should this be feasible.

11 Construction, demolition and excavation waste

PPS1 requires that the SWRP must set out how developers will ensure that no construction, demolition and excavation waste is sent to landfill, except for those types of waste where landfill is the least environmentally damaging option.

A SWMP is used to plan, implement, monitor and review waste minimisation and management on construction sites. In December 2013, the SWMPs Regulations 2008 were repealed. However, the implementation of a SWMP remains industry best practice, is a requirement of PPS10: Planning for Sustainable Waste Management and supports the requirements of PPS: Eco-Towns – A supplement to PPS1.

The SWMP is used to record how waste is reduced, reused, recycled and disposed of on a construction site. This effectively means:

- Recording decisions taken to prevent waste through concept and design
- Forecast waste produced on site
- Plan how to reduce, reuse and then recover the forecasted waste
- Implement and monitor the planned activity
- Review the SWMP and record lessons learnt

The SWMP is a live document recording how waste is managed and is updated regularly during the course of the project. Preparing a SWMP encourages the review of current waste reduction and recovery practice levels, highlighting areas where good and best practice can be achieved. The SWMP facilitates the identification and implementation of waste minimisation at the design stage and reuse and recycling opportunities during on site operations, reducing the quantities of construction waste sent to landfill.

A preliminary SWMP has been submitted as part of the Environmental Statement.