

Delivering a 'Waste to Resources' Plan for Somerset's Urban Extensions

Report A: Waste Infrastructure Study

Somerset County Council

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SECTION 1

INTRODUCTION

1.0 INTRODUCTION

1.1 Introduction

1.1.1 Somerset County Council (SCC) has commissioned Parsons Brinckerhoff (PB) to provide advice on the sustainable waste and resources infrastructure needs of the urban extensions planned for Yeovil and Taunton in Somerset.

1.1.2 As proposed exemplar developments, both urban extensions should surpass current best practice and be leaders in minimising and extracting value from waste.

1.1.3 Through implementing the principles of 'placemaking', SCC wish to be at the forefront of innovative waste management solutions. Placemaking is both an overarching concept and a hands-on tool for improving a neighbourhood, city or region, and has the potential to be one of the most transformative ideas of this century. It is a bottom up, 'place'-based process that allows for the development of areas that are more attractive, and compatible with the people that use them.

1.2 Objectives

1.2.1 This report provides guidance on what the urban extensions could and should achieve in relation to waste management and material resource efficiency, in order to provide input to the masterplanning processes for the urban extensions, along with a robust basis for planning advice for developers delivering the urban extensions. It seeks to:

- Accurately forecast waste arisings (household and non household) for the urban extensions; by
 - waste stream; and
 - different mixed use scenarios;
- Accurately forecast waste growth for the urban extensions;
- Benchmark current performance against national, regional and EU performance;
- Recommend ambitious but practicable targets for recycling, residual waste treatment and landfill diversion to deliver beyond best practice¹;
- Develop a robust reporting framework to enable monitoring and maintenance of targets;
- Review and assess the role best practice approaches have on waste generation;
- Assess the potential synergies for co-management of municipal, commercial and industrial waste;
- Advise on waste infrastructure and technological options;
- Review and assess waste storage provisions; and
- Advise on the diversion, where feasible, of construction, demolition and excavated material from landfill.

¹ Substantially more ambitious than 2007 national Waste Strategy targets for 2020 (residual waste reduction per person 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 from 38% in 2005 to 75% in 2020).

1.3 Paradigm shift

1.3.1 The UK is experiencing a paradigm shift with a fresh approach and attitude to waste management. With renewed Government focus and waste industry support, there is a concerted drive to build a 'zero waste' nation, whereby resources are fully valued and nothing is wasted.

1.3.2 Moving from waste to resources management is of paramount importance in future UK developments, and the growth of local, regional and national legislation will aid the transition and cultural acceptance. Resource management plays an important role in promoting sustainable material use. The move away from waste (disposal) through the use of systematic efforts to attain the effective and efficient use of materials will lead to the minimisation of inputs and undesirable outputs throughout a material's life cycle. The move seeks to bring materials back into the industrial cycle for reuse, or back into the natural cycle to nourish the earth. Resource management is a critical component of sustainability given that the principle of sustainability – meeting current needs without sacrificing the future – is built upon the conservation of resources.

1.4 Implementing the Zero Waste Vision

1.4.1 As a result of the changed approach to waste management, local authorities are under increased pressure to demonstrate a policy shift and implement measures to deliver greater waste efficiency.

1.4.2 In order to assist in achieving the UK vision of 'zero waste' and to meet Government targets set in respect of waste, a number of future commitments have been made. Defra has recently undertaken a review of all aspects of waste policy and delivery in England. The Review's findings were published in June 2011, alongside a series of actions for the future. The principal commitments, aimed at ensuring a more sustainable approach to the use of materials, delivering environmental benefits, and supporting economic growth, are summarised below:

- Prioritise efforts to manage waste in line with the waste hierarchy and reduce the carbon impact of waste;
- Develop a range of measures to encourage waste prevention and reuse, supporting greater resource efficiency;
- Develop voluntary approaches to cutting waste, increase recycling, and improve the overall quality of recyclate material, working closely with business sectors and the waste and material resources industry;
- Consult on the case for higher packaging recovery targets for some key materials;
- Support energy from waste where appropriate, and for waste which cannot be recycled;
- Work to overcome the barriers to increasing the energy from waste which Anaerobic Digestion provides, as set out in the new AD Strategy;
- Consult on restricting wood waste from landfill and review the case for restrictions on sending other materials to landfill.

1.4.3 In addition, in accordance with the stated aim of improving the service to householders and businesses, while delivering environmental benefits and supporting growth, Defra has established the following key commitments:

- Support initiatives which reward and recognise people who do the right thing to reduce, reuse and recycle their waste;

- Work with councils to increase the frequency and quality of rubbish collections and make it easier to recycle;
- Encourage councils to sign the new Recycling & Waste Services Commitment, setting out the principles they will follow in delivering local waste services;
- Protect civil liberties by stopping councils from criminalising householders for trivial bin offences, while ensuring that stronger powers exist to tackle those responsible for flytipping and serious waste crime;
- Support councils and the waste industry in improving the collection of waste from smaller businesses;
- Reduce the burden of regulation and enforcement on legitimate business, but target those who persistently break the law.

1.5 The Waste Hierarchy

1.5.1 A key element in delivering the zero waste vision lies in the implementation of the 'waste hierarchy'. This is set out within the revised EU Waste Framework Directive which has been recently transposed into UK domestic law. The Directive makes it a legal requirement for all waste management activities to adhere to the new five step waste hierarchy (set out below).

1.5.2 All future decisions on waste policy, management and developing infrastructure will be expected to take into account the hierarchy, which prioritises prevention, preparing for reuse, recycling, recovery and finally disposal as the final option.



1.6 Future waste policy changes

1.6.1 This section considers the possible changes the Coalition Government will make to waste policy over the next couple of years based on current direction. The recommendations contained within this report need to be viewed in the context of possible future policy shifts, updated targets, and / or revised regulatory regimes.

1.6.2 The Government acknowledges that in order to achieve its zero waste objectives, a policy and regulatory framework is required at every stage of the waste hierarchy. The Government needs to facilitate a rapid move away from a linear process of resource

extraction, manufacture, consumption and disposal, towards a 'closed loop' economy, where resources are fully valued and remain in use. The recent publication of the Waste Policy Review in June 2011 represents one of the first important steps in delivering this vision.

1.6.3 There are a number of changes already underway which have the potential to impact upon waste policy and management. These include:

- **Introduction of end-of-waste criteria** - specific criteria for a number of materials, including iron, steel, aluminium and compost. If material complies with these criteria, the material is not deemed a waste and therefore does not have to adhere to waste regulations. This has permit, transport, legislative and cost implications, and is of particular potential relevance to Somerset which has a high C&I metallic waste tonnage. These criteria have the potential for the following effects:

Supply-side factors:

- Changes in production costs;
- Changes in the situation of competition (e.g. if barriers to the functioning of the internal market are removed by the introduction of the end of waste criteria)
- Removal/creation of barriers for new suppliers to enter the market;
- Changes in the quantities of the material offered in the market;
- Possibilities of making profits from supplying recycled material of inferior quality.

Demand-side factors

- Changes in the cost of using the material (e.g. reduced regulatory compliance costs if material use is no longer covered by waste law);
 - Changes in perceived value of the material (loss of waste 'stigma');
 - Changed costs and possibilities verify the quality of recycled material;
 - Increase/reduction of choices for the users;
 - Change in investment preferences, especially regarding waste management capacities.
- **Review of Planning Policy Guidance Framework** – the DCLG propose to withdraw individual PPGs / PPSs in favour of a single overarching national planning policy framework. A draft National Planning Policy Framework (NPPF) was published in July 2011 and was subject to consultation until October 2011. The Government is now considering the responses received before deciding on how to amend the framework which is expected to be published in Spring 2012.
 - **New way of measuring municipal waste**, in line with EU definition. Previously the term 'Municipal Waste' as used in the UK was used in waste policies and nationally reported data to refer to waste collected by local authorities. In fact, the definition of municipal waste as described in the Landfill Directive includes both household waste and that from other sources which is similar in nature and composition, which will include a significant proportion of waste generated by businesses and not collected by Local Authorities. In 2010, negotiations with the EU Commission and consultation with the waste community redefined national targets and the effects of this change in relation to the EU

Landfill Directive targets. This should assist in the rationalisation of waste descriptions going forward, allowing direct comparisons to be made between waste of similar composition and nature, however it should be noted that waste streams pre-2010 are not as straightforward to compare due to the varying application of the 'municipal' definition.

- **Abolition of Landfill Allowance Trading Scheme (LATS) in 2013** - while LATS has been effective in kick-starting significant efforts to divert waste away from landfill, the rising level of Landfill Tax means it is now by far the more significant driver. In addition, LATS only addresses the local authority proportion of municipal waste, and does not act on the commercial waste element managed by the private sector. As a result the scheme is no longer considered by the Government to be the most appropriate means of ensuring that England meets its share of the UK Landfill Diversion targets.
- **The Green Investment Bank:** the GIB's mission will be to accelerate private sector investment in the UK's transition to a green economy. It will play a vital role in addressing market failures which are holding back private sector investment. Sectors likely to be eligible for intervention initially include offshore wind, non-domestic energy efficiency and waste. The Bank's initial remit will be to focus on green infrastructure assets, and on the twin objectives of achieving significant green impact and making financial returns.

1.6.4 Included in the Coalition Government's business plan is an ambition to increase transparency on spending, which includes plans to make the cost of local authority waste management per household available. This process would come into effect from May 2011, although the exact details are not included in the business plan.

1.7 Localism in action – the role of householders

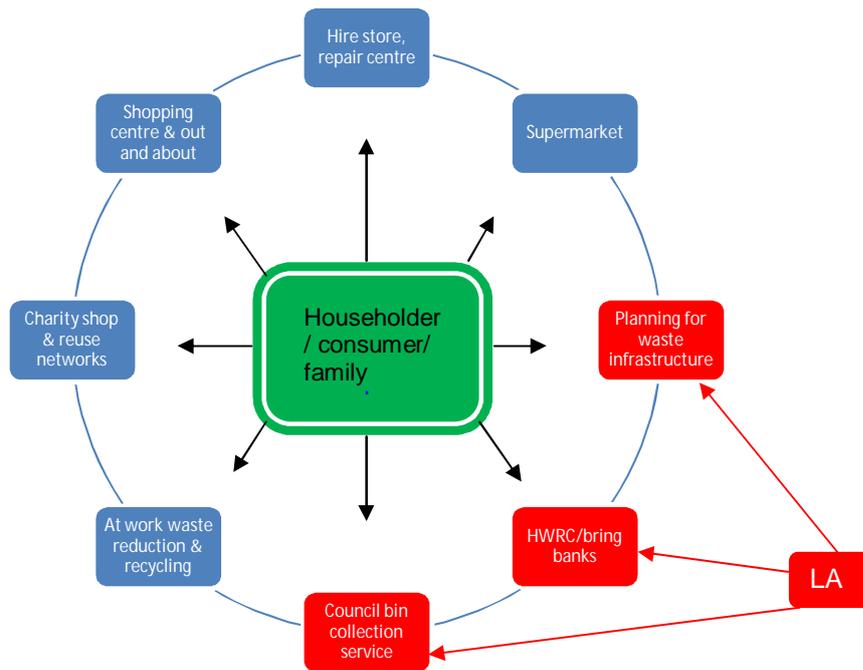
1.7.1 The **Localism Act 2011**, which has now received Royal Assent, contains a variety of proposals intended to give councils new and unprecedented freedom over how to prioritise their money. Changes with the potential to be implemented under this new legislation include:

- giving the public, councillors and councils the power to instigate non-binding referendums on local issues;
- the potential for communities to look to run their waste services by giving them the power to express an interest in running any service the council runs;
- a general power of competence, whereby councils can do anything apart from something which is specifically prohibited;
- giving the public the power to veto 'excessive' council tax increases - above a ceiling set by the government - using referendums, which could affect councils' ability to raise extra revenue which could compensate for reduced central government funding, thereby protecting frontline services such as waste.

1.7.2 Policymakers increasingly recognise that community participation is crucial in responding to many social challenges that drive escalating demand for public services, including waste management. Centrally driven initiatives have struggled to make an impact on many of the complex issues confronting us today. Localism provides more opportunities for communities to develop and deliver their own solutions and to learn from each other.

1.7.3

The following diagram places the individual or household at the centre of waste management, driving the services. The diagram shows a range of local recycling facilities that enable local households to recycle as part of their everyday life, wherein the notion of recycling is integrated into their lifestyle and fits easily into their schedule. The local authorities are also required to build on the concept of local needs and fit their services and collections around the householder, making it easy for people to recycle. The bottom-up approach has seen high recycling rates amongst a number of local authorities. The focus has moved from what is easy for the local authority, to what is easy for the householder.



SECTION 2

SOMERSET'S URBAN EXTENSIONS

2.0 SOMERSET'S URBAN EXTENSIONS

2.1 Introduction

2.1.1 The Eco-towns concept represents a government-sponsored program of new towns, introduced by the previous administration, with the intention of achieving exemplary standards of sustainability. They were designed to comprise small new towns of at least 5-20,000 homes, with the intention of exploiting the potential to create complete new settlements, achieving zero carbon development and more sustainable living, using the best new design and architecture.

2.1.2 Eco-towns were proposed with a view to making a significant contribution to achieving national housing targets and helping to address the threat of climate change. They were proposed as exemplar projects, intended to encourage and enable residents to live within managed environmental limits and in communities that are resilient to climate change.

2.1.3 In 2009, Gordon Brown promised these world-leading zero carbon developments ...
"... would address the twin challenges of climate change and the national housing shortage ...would have zero-carbon shops, restaurants and public buildings.....at least half of all journeys within and from the town would be made by foot, cycle or public transport."

2.1.4 In October 2007, the Department for Communities and Local Government (DCLG) announced a competition to build up to 10 eco-towns. On 16 July 2009, the UK Government announced the four successful eco-town bids: Whitehill-Bordon (Hampshire), St Austell (Cornwall), Rackheath (Norfolk) and North West Bicester (Oxfordshire).

2.1.5 In December 2009, the Housing Minister announced a second wave of eco-towns. A total of five authorities and partnerships, covering ten locations, have submitted proposals. These comprise:

- Taunton - Monkton Heathfield (1) and Comeytrove (2);
- Yeovil (3);
- Leeds City Region - Aire Valley (4), York North West (5), North Kirklees (6) and Bradford-Shipley Canal Corridor (7);
- Coventry (8);
- Lincoln - Lincoln area (9) and Gainsborough (10).

2.1.6 It is recognised that Eco-towns are no longer actively promoted by Government, although the principles involved continue to be objectives for wider sustainable planning. The term 'eco-community' appears to be coming to the fore instead.

2.2 Eco-town requirements

2.2.1 The standards that Eco-towns were designed to meet include the following, as set out in the Planning Policy Statement 1 Supplement: Eco-Towns (July 2009):

- **Affordable housing:** a minimum of 30% affordable housing in each Eco-town;
- **Zero-carbon:** Eco-towns must be zero-carbon over the course of a year (not including transport emissions);
- **Green space:** a minimum of 40% of Eco-towns must be green space;
- **Waste and recycling:** Eco-towns must have higher recycling rates and make use of waste in new ways;
- **Homes:** homes must reach Code for Sustainable Homes level 4 or higher;
- **Employment:** at least one job opportunity per house accessible by public transport, walking or cycling;
- **Services:** there must be shops and a primary school within easy walk of every single home, and all the services expected from a town of up to 20,000 homes;
- **Transition / construction:** facilities should be in place before and during construction;
- **Public transport:** real-time public transport information in every home, a public transport link within ten minutes walk of every home; and
- **Community:** there must be a mixture of housing types and densities, and residents must have a say in how their town is run, by governance in new and innovative ways.

2.2.2 In essence, Eco-towns should exceed national average expectations; they need to surpass current best practice. They should also seek to be leaders in the transformation from a waste management economy to one based on integrated resource management.

2.3 Specific planning guidance in respect of Eco-Towns

2.3.1 The following planning guidance notes are of specific relevance to Eco-towns and provide guidance which assists in establishing the context for this study:

- Planning Policy Statement: Eco-Towns (Supplement to PPS1): DCLG July 2009;
- Towards Zero Waste: Eco-Towns Waste Management Worksheet: TCPA, November 2008.

PPS1 Supplement

2.3.2 This document provides specific planning advice regarding the development of Eco-towns. Section ET1 sets out the principles for developing eco-towns, in particular the emphasis for striving for exemplar forms of development. Eco-towns should “... develop unique characteristics by responding to the opportunities and challenges of their location and community aspirations. Eco-town proposals should meet the standards as set out in this PPS or any standards in the development plan which are of a higher standard. Developers and local planning authorities will need to consider how they should be applied in practice, recognising the unique nature of each site...”.

2.3.3 Section ET5 provides advice on determining planning applications, stating that the guidance in the PPS1 Supplement is intended to be a material planning consideration that should be given weight in determining planning applications for eco-towns. It should be noted that the PPS Supplement, along with other extant PPGs and PPSs, is proposed to be withdrawn and replaced in 2012 by the new single National Planning Policy Framework but the aspirations contained within it are still important in guiding the development of the proposed eco-towns.

2.3.4 The PPS1 Supplement contains a series of 'Eco-Town Standards' on a number of relevant criteria, including ET19 which relates to Waste. ET19 sets out the requirement for the provision of a sustainable waste and resources plan for Eco-towns, the detailed requirements of which comprise the following:

*Eco-town planning applications should include a **sustainable waste and resources plan**, covering both domestic and non-domestic waste, 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 2020; 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, and

(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.

Towards Zero Waste: Eco-Towns Waste Management Worksheet

2.3.5 This guidance note outlines the important role that eco-town developments have in providing the mechanisms, facilities and services that will make it easier for people to manage their waste in a sustainable way. It stresses that, as exemplar developments, "... *eco-towns should aim to achieve more than current best practice. They should be leaders in the transformation from a waste management economy to one based on resource management, and they should contribute to reducing the impacts of waste on climate change..*".

2.3.6 All eco-towns should adhere to the following five principles set out within the guidance note:

- View waste as a resource;
- Take an integrated approach to waste / resource management;
- Seek solutions that provide multiple benefits, including contributing to 'zero carbon' development;
- Eco-towns as exemplars, going beyond national average expectations;
- Eco-towns as catalysts for change in performance in surrounding areas.

2.3.7 In order to achieve the above, the following minimum measures should be implemented:

- **Plan for Zero Waste** – via the preparation of a waste and resources plan;
- **Set ambitious targets** – going substantially beyond those in the Government's 2007 Waste Strategy;
- **Co-ordinate waste management** – making the most of opportunities presented, such as synergies for co-managing municipal, commercial and industrial waste;
- **Set high building design standards** – achieving maximum points available on all waste components of the Code for Sustainable Homes (residential); maximum points for waste and materials under BREEAM (non-residential) and use of Green Guide A-rated building components and construction materials as standard;
- **Move towards zero construction waste** – in excess of the Government's national target of at least a 50% reduction in construction, demolition and excavation waste to landfill (compared with 2008);
- **Provide high quality waste facilities** – of high quality, visually attractive, and not detrimental to their immediate surroundings.

2.3.8 This report seeks to apply the above principles to the urban extensions planned for Yeovil and Taunton in Somerset, both of which have been conceived as being delivered in accordance with eco-towns' principles.

2.4 Somerset Eco-towns

2.4.1 The DCLG has indicated, subject to formal bid, that proposed urban extensions to Monkton Heathfield and Yeovil will be two of nine areas in the UK that will benefit from a £10 million pot that will support the design and development of aspirational eco-town standards and Demonstrator developments to showcase development with high standards of carbon saving (reflecting eco town standards). The following sections provide a brief overview of each of the proposals.

2.5 Monkton Heathfield urban extension in Taunton

2.5.1 Monkton Heathfield will be a new compact village of circa. 5,000 new homes, to the north east of Taunton within the administrative area of Taunton Deane Borough Council (TDBC). The proposed urban extension is based around the existing village of Monkton Heathfield, with the majority of the land to be developed lying to the east of the village. The site is identified within Policy SS1 of the Taunton Deane Core Strategy 2011-2028. The policy states that the preparation and adoption of SPD will be required to further guide development, incorporating a masterplan and design codes, to ensure a coordinated approach to the delivery of this site. The Core Strategy is to be subject to Examination in February 2012.

Development Mix

2.5.2 The development is scheduled to be built in three phases from 2011 to 2027 and will comprise a mix of residential, retail, business and public development. The key figures are provided in Table 2.1.

- 2.5.3 These figures have been derived from a combination of sources – the Taunton Strategic Masterplans, produced by Urban Initiatives, in January 2011, and the Taunton Masterplan Stage 1 Report for Monkton Heathfield, produced by Atelier Ten, April 2011. As such they comprise a 'best estimate' of current development breakdowns and phasing; while this may be the subject of further change it is considered to provide sufficient basis for the purposes of estimating waste likely to be derived from the proposals.
- 2.5.4 The first column provides a general description of the proposed quantum of development as set out within the Urban Initiatives report. With the exception of the figures for the district centre (which are also derived from the Urban Initiatives Report) the detailed figures provided in the remainder of columns, including the suggested phasing, are derived from the subsequent Atelier Ten report.

Table 2.1: Monkton Heathfield – Key Figures

Type of development	Total amount	Phase I 2011-2016	Phase II 2016-2021	Phase III 2021-2027
Residential 'up to 5,000 units'	5,356 units	1,259 units	1,718 units	2,379 units
Employment: B2 'circa. 3 ha to the south of Monkton Heathfield at and adjacent to The Hatcheries'	9,492m ² on 3.16 ha	9,492m ² (3.16ha)		
Employment: B8 'Circa. 8 ha on NE edge of Monkton Heathfield at Walford Cross'	9,492m ² on 11.25ha		19,683m ² (9.44 ha)	3,790m ² (1.8ha)
'Facilities in the village centre' All figures in gross m²	4,400m ² food store (A1) 8,000m ² other A1, plus A2 (financial / professional services), A3 (restaurants / cafes), A4 (drinking establishments), and A5 (hot food takeaways). 1,000m ² offices (B1 (a))			
New primary schools	3	3,500m ²	3,500m ²	3,500m ²
New secondary schools	1			8,000m ²

Source: Taunton Strategic Masterplans, Urban Initiatives, January 2011, and Taunton Masterplan Stage 1 Report: Monkton Heathfield Strategic Masterplan, Atelier Ten, April 2011

Taunton Protocol

- 2.5.5 In designing and constructing the urban extension at Taunton, the developer/s will be contractually obliged to deliver in accordance with the Taunton Protocol.
- 2.5.6 The Taunton Protocol is a strict set of standards, designed to guide the redevelopment of Taunton town centre, via 'Project Taunton'. It has been developed jointly by a number of parties involved in this redevelopment, including Taunton Deane Borough Council, Somerset County Council, the former South West of England Regional Development Agency, the Environment Agency, and Fulcrum Consulting. The standards are not a prescriptive set of rules that dictate the design response of the development, rather they act as an overarching framework requiring the developer to act decisively on a wide range of issues and develop an appropriate, bespoke design solution.
- 2.5.7 The Taunton Protocol contains 30 standards split across six sections covering a wide range of sustainability issues. The standards have been designed so as to always be one step ahead of national policy, constantly raising the bar, challenging developers and designers to demonstrate to industry what is possible. The Protocol has been developed, where possible, to align assessment methodology with evolving national and regional policy and to build upon established industry assessment methods.
- 2.5.8 The Taunton Protocol will assist SCC in its goal to make the eco-development an exemplar, and surpass current best practice, paving the way to 'rethinking excellence' and the setting of the highest standards.

2.6 Urban extension plans for Yeovil

- 2.6.1 South Somerset District Council (SSDC) is investigating the potential for a proposed urban extension to Yeovil to be brought forward as a world leading eco-town. The exact location of the Yeovil Urban Extension is not defined at present but will fall within one of three potential areas to the south of Yeovil. These areas of search are as follows:
- Brympton & Coker;
 - East Coker, Keyford & Barwick (SSDC's preferred location);
 - East Yeovil & Over Compton.

Development Mix

- 2.6.2 The urban extension was originally identified as a location for 5,000 new dwellings in the Draft South West Regional Spatial Strategy. When the Government abandoned formal housing targets SSDC opted to retain the urban extension proposal and reduce the number of homes to be built. The draft Core Strategy (October 2010) recommends that the urban extension accommodates 3,719 units. In addition, the development is anticipated to accommodate 23 ha of land for employment, primary and secondary school provision and appropriate supporting transport infrastructure. No detailed masterplans or phasing plans are as yet available for the proposed development.
- 2.6.3 The above policy requirements are encapsulated within policy YV2 of the draft Core Strategy, as set out below. As this policy is still at consultation stage, there may be changes to the proposed figures during the course of the plan-making process, but the core principals are expected to remain the same.

Policy YV2 Yeovil Urban Extension

Land is required for the Yeovil Urban Extension for strategic growth to provide for the following within the plan period;

- 3719 dwellings;
- 23 hectares of employment land;
- Secondary and primary school provision;
- Identified community and transport Infrastructure within the South Somerset Infrastructure Delivery Plan.

The preferred option for the strategic location for Yeovil Urban Extension is located on land to the south of Yeovil (in the vicinity of East Coker/Keyford/Barwick).

The Yeovil Extension will be developed to Eco-town standards as listed with the Eco-town PPS the supplement to PPS1. Adoption of Eco-town standards is subject to viability assessment.

Source: South Somerset District Council Draft Core Strategy (incorporating Preferred Options) October 2010

2.6.4 In addition, SSSC is promoting an urban village within the town centre aimed at regenerating an existing brownfield site via redevelopment. The site comprises a triangle of previously developed land between Stars Lane, Park Street / South Street and Dodham Brook. It was originally considered suitable for residential (around 400 units) along with retail / leisure development and was included as a strategic location for a mixed use scheme within SSSC's draft Core Strategy (SSDC Draft Core Strategy, incorporating Preferred Options, October 2010, policy YV3). Subsequent analysis of market demand and detailed consideration of other factors, including consultation responses, has resulted in revised proposals for the following development mix:

- 151 housing units in a proportion of 60% family houses and 40% flats;
- approximately 1,100 sq metres of commercial floorspace (of which a proportion could comprise shops / cafes / restaurants);
- a 60 bed hotel.

2.6.5 The revised proposals are set out within the Draft Summerhouse Village Masterplan prepared by Urbed and dated August 2011. The original site allocation within policy YV3 of the draft Core Strategy envisaged the development of the Urban Village to Eco-town standards, and this remains the case, notwithstanding the subsequent reduction of development quantum within the emerging masterplan. For the purposes of this assessment, the urban village will be considered in parallel with the urban extension when determining Yeovil's waste arisings.

2.7 Best Practice

2.7.1 This report seeks to identify innovative means to minimise and extract maximum value from waste generated during the construction and occupation of the Yeovil and Taunton urban extensions, taking on board the specific guidelines outlined in Section 2.3 of this report. In partnership with local authorities, the eco-developments seek to

set the ambitious goal of surpassing government targets for 2020 and current best practice, and embark upon a pathway to zero waste. The urban extensions have the potential to act as catalysts for Somerset-wide change.

2.7.2

The above will be achieved via:

- The setting of ambitious waste targets;
- Synergies for co-management of all waste producers;
- The setting of high building design standards;
- Progressive construction waste targets;
- Use of technological innovative waste facilities; and
- The facilitation of cultural change.

SECTION 3

**LEGISLATION, POLICY, GUIDANCE AND
STANDARDS**

3.0 LEGISLATION, POLICY, GUIDANCE AND STANDARDS

3.1 Introduction

3.1.1 There are a number of legislative provisions and policy documents that directly relate to waste, which will need to be adhered to if the eco-developments are to demonstrate eco town status and exceed best practice. This Section provides an overview of those of the greatest relevance.

3.1.2 A number of guidelines and specifications are particularly pertinent in attaining the world class status each development seeks to achieve. These are outlined in Sections 3.2 to 3.4 below.

3.2 Code for Sustainable Homes 2010

3.2.1 CSH is an environmental assessment method for new homes and contains a series of mandatory and non-mandatory performance levels in nine areas, including waste.

3.2.2 There are three components within the waste section of CSH (category 5), relating to the following elements of waste management.

- Was 1: Storage of Non-Recyclable Waste and Recyclable Household Waste;
- Was 2: Construction Site Waste Management;
- Was 3: Composting.

3.2.3 The TCPA guidance note 'Towards Zero Waste' advocates the achievement of maximum points available on all three waste components of CSH. The PPS1 Supplement advocates an across the board achievement of CSH Level 4 for residential development in eco-towns.

3.2.4 The requirements set out under Was 1 and Was 3 are of relevance to the matters considered within this report. Was 2 is of relevance to a separate report¹.

3.3 BREEAM

3.3.1 BREEAM comprises an environmental assessment method and rating system for non-domestic buildings, which sets the standard for best practice in sustainable building design, construction and operation. A BREEAM assessment uses recognised measures of performance, which are set against established benchmarks, to evaluate a building's specification, design, construction and use. The measures used represent a broad range of categories and criteria.

3.3.2 Section 10 of BREEAM relates to waste and contains four criterion against which buildings' performance is assessed. These comprise:

- Wst 1: Construction waste management;
- Wst 2: Recycled aggregates;
- Wst 3: Operational waste;
- Wst 4: Speculative floor and ceiling finishes.

¹ Delivering a 'Waste to Resources Plan' for Somerset's Urban Extensions, Report C: Site Waste Management Strategy, Parsons Brinckerhoff, December 2011

3.3.3 The TCPA guidance note expects non-residential buildings to seek to achieve maximum points for waste and materials under BREEAM, in order to contribute towards achieving an overall high BREAAM level, e.g. 'Very Good' or 'Excellent'.

3.3.4 Criterion Wst 3: Operational waste is of relevance to this study.

3.4 Green Guide to Specification 2008

3.4.1 The Green Guide is part of BREEAM. It contains more than 1,500 specifications used in various types of building. It includes information on the environmental performance of materials and components to assist in choosing the right material specification for each project. It examines environmental impacts of the construction materials commonly used in six different generic types building including:

- Commercial buildings, such as offices;
- Educational;
- Healthcare;
- Retail;
- Domestic; and
- Industrial.

3.4.2 The environmental rankings are based on Life Cycle Assessments (LCA), using BRE's Environmental Profiles Methodology 2008.

3.5 Other relevant national and county legislation, policy and guidance

3.5.1 Other relevant legislative and policy documents include:

- **Landfill Directive (1999/31/EC):** this aims to prevent or reduce, as far as possible, negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, arising from the landfilling of waste, during the whole life-cycle of the landfill.
- **Waste Framework Directive (2008/98/EC):** this sets out the basic concepts and definitions related to waste management and lays down waste management principles such as the 'polluter pays' and 'waste hierarchy'.
- **Packaging and Packaging Waste Directive (94/62/EC):** this is concerned with minimising the creation of packaging waste material and promotes energy recovery, re-use and recycling of packaging. In the UK this is implemented through the *Producer Responsibility Obligations (Packaging Waste) Regulations 2007* (as amended) and the *Packaging (Essential Requirements) Regulations 2003* (as amended).
- **WEEE Directive (2002/96/EC):** this imposes the responsibility for the disposal of waste electrical and electronic equipment on the manufacturers of such equipment.
- **Integrated Pollution Prevention and Control Directive (2008/1/EC):** this requires industrial and agricultural activities with a high pollution potential to have a permit. This permit can only be issued if certain environmental conditions are met, so that the companies themselves bear responsibility for preventing and reducing any pollution they may cause.

- **Producer Responsibility Principle 2007:** this is the concept that manufacturers and importers of products bear a degree of responsibility for the environmental impacts of their products throughout the products' life-cycles, including upstream impacts inherent in the selection of materials for the products, and impacts from manufacturers' production process, and downstream impacts from the use and disposal of the products.
- **Waste Incineration Directive (2000/76/EC):** this imposes strict operating conditions and technical requirements on waste incineration plants and waste co-incineration plants.
- **Environment Protection Act 1990 (sections 33 and 34):** this defines the fundamental structure and authority for waste management and control of emissions into the environment. Part I prescribes processes and substances, and sets limits in respect of emissions into the environment. Part II sets out the regime for regulating and licensing the acceptable disposal of controlled waste on land. Section 33 covers unauthorized disposal and section 34 Duty of Care.
- **Waste and Emissions Trading Act 2003:** this is intended to help the UK meet its European obligations under the Landfill Directive and will give statutory footing to penalties in the world's first economy wide emissions trading scheme.
- **Household Recycling Act 2003:** this requires all English waste collection authorities to collect at least two types of recyclable waste from all households in their area.
- **Environmental Permitting Regulations 2010:** these outline the range of activities that require an environmental permit.
- **Duty of Care Regulations 1991:** these outline the main steps that someone disposing of waste needs to go through.
- **Site Waste Management Plan (SWMP) Regulations 2008:** these require any person intending to carry out a construction project with an estimated cost greater than £300,000 to prepare a Site Waste Management Plan.
- **BS 5906:2005 Waste Management in Buildings:** this covers methods of storage, collection, segregation for recycling and recovery, and on-site treatment of waste from residential and non-residential buildings and healthcare establishments. It is applicable to new buildings, refurbishments and conversions of residential and non-residential buildings, including but not limited to retail and offices.
- **Waste Strategy 2007 (England):** this establishes the Government's objectives and targets for the management of waste, including the aim of decoupling waste growth from economic growth and putting greater emphasis upon waste prevention and re-use, in accordance with the principles of the 'waste hierarchy'.
- **The Strategy for Sustainable Construction, June 2008:** this sets out the shared vision for sustainable construction and establishes specific commitments by industry and Government to take the sustainable construction agenda forward, including the objective of achieving a 50% reduction of construction, demolition and excavation waste to landfill (compared to 2008) by 2012.

- **Manual for Streets 2007, (Department for Transport:** this advises that planning authorities should ensure that new developments make sufficient provision for waste management and promote design and layouts that secure the integration of waste management facilities without adverse impact on the street scene.
- **Planning Policy Statement 1: Delivering Sustainable Development, January 2005:** this PPS sets out the means by which the planning system can promote and facilitate sustainable and inclusive patterns of development. Plan policies should facilitate waste management in ways that protect the environment and human health, including producing less waste and using it as a resource wherever possible. This PPS is due to be replaced by the emerging single National Planning Policy Framework (NPPF) document.
- **Planning Policy Statement: Eco-towns (Supplement to PPS1): July 2009:** this PPS provides supplementary advice to PPS1, setting out policies and minimum standards in respect of the Government's proposed eco-towns that are more challenging than would normally be required for new development. This PPS Supplement is due to be replaced by the emerging single National Planning Policy Framework (NPPF) document.
- **Planning Policy Statement 10: Planning for Sustainable Waste Management, March 2011:** this PPS sets out those policies to which waste planning authorities should have regard in discharging their responsibilities in accordance with national waste policy. It encourages policy provision in which communities take more responsibility for their own waste; there is sufficient and timely provision of waste management facilities to meet communities' needs without endangering human health and without harming the environment; waste is disposed of in one of the nearest appropriate installations; and the design and layout of new development supports sustainable waste management. This PPS is due to be replaced by the emerging single National Planning Policy Framework (NPPF) document.
- **From Rubbish to Resource: Regional Waste Strategy for the South West 2004 to 2020:** the RWS sets out how a framework for delivery of the 'South West Vision for Waste: Minimum Waste, Maximum Benefit' with a view to ensuring that "... *the South West will become a minimum waste region by 2030, with households and businesses maximising opportunities for reuse and recycling...*". It includes a target that by 2020 over 45% of the South West's waste is recycled and reused, and less than 20% of waste produced in the region landfilled.
- **Draft Regional Spatial Strategy (RSS) for the South West 2006-2026:** this document establishes a regional planning framework for the South West and has been through Examination in Public but was not adopted. The Government set out its intention to abolish RSSs in the Localism Act which received Royal Assent in November 2011, and advises that this intention should be a material planning consideration. The draft RSS incorporates the spatial elements of the RWS including the regional waste allocations to 2020 but it will not now be adopted and so the regional waste allocations is currently uncertain.

- **Somerset Municipal Waste Management Strategy:** this document sets out the way in which the County will manage municipal waste arisings in the period 2004 to 2020, following the vision contained within the original Waste Strategy (2000). The MWMS seeks to reduce the volume of waste arising in future years, and make the best use of the material generated. Key targets include: a reduction in the level of municipal waste growth in Somerset from 3.4% to 1% by 2010 to be achieved through a dedicated Waste Minimisation Strategy; working towards a target of recycling at least 50% household waste by 2010, with sufficient capacity to recycle up to 65% by 2020; and reducing the amount of biodegradable material disposed of to landfill.
- **Somerset and Exmoor National Park Joint Structure Plan Review 1991-2011 (adopted April 2000):** this provides a framework of strategic policies to which regard should be given in developing local plan policies, including those in respect of waste; JSP policies 65 to 68 are of specific relevance to waste.
- **Somerset Waste Local Plan 2001-2011 (adopted February 2005):** this comprises a statutory land use plan, providing a sub-regional interpretation of the broad guidance contained in national and regional waste policy, along with a local strategy and planning policies to achieve the broad aims for waste management set out in the Somerset and Exmoor National Park Joint Structure Plan Review. It also addresses the waste related issues which arise from other strategic documents, such as the Somerset Minerals Local Plan, Local Transport Plan and Municipal Waste Management Strategy. It will ultimately be replaced by the emerging Minerals and Waste LDF (see below).
- **Waste Management Need to 2028 (Waste Topic Paper 1) March 2011:** this document forms part of the evidence base for the emerging Somerset Minerals and Waste Development Framework and determines capacity requirements for the following three principal waste streams: i) municipal solid waste (MSW); ii) commercial and industrial waste (C&I) and iii) construction and demolition waste (C&D). Consideration is also given to the requirements associated with hazardous waste, sewage waste and agricultural waste.
- **Somerset County Council Minerals and Waste Development Framework: Waste Planning: Issues and Options II, March 2011;** this consultation document represents an early stage in the preparation of the Waste Core Strategy, which will itself set out strategic planning policies for waste in Somerset as part of the Minerals and Waste LDF. Issues and Options II sets out the broad issues concerning waste management in Somerset and presents possible options to resolve these issues. It follows the previous consultation on issues and options undertaken by SCC in 2007. The next stage in the process will be the preparation of the pre-submission Core Strategy once consultation responses have been reviewed, assessed and acted upon.

3.6 Somerset Waste Partnership guidance

- 3.6.1 In March 2010, the Somerset Waste Partnership (SWP) which manages waste and recycling on behalf of five local authorities– Taunton Deane, South Somerset, Mendip, West Somerset and Sedgemoor - produced guidance entitled '**Design Requirements for Residential Properties – Recycling & Waste Management**' which sets out design requirements for residential new build and redevelopment. It

has been prepared having regard to the requirements of Part H6 of the Building Regulations 2000 which states that solid waste storage should be "... of sufficient area having regard to the requirements of the waste collection authority for the number and size of receptacles under sections 46 and 47 of the Environmental Protection Act 1990...".

- 3.6.2 SWP recommends that all new developments should follow the guidance given in the above document. The guidance is seen as a crucial tool in achieving the highest levels of recycling, by securing measures that facilitate the ability for residents to undertake recycling with ease, thus minimising the amount of rubbish put out for disposal. These measures focus upon the integration of arrangements for recycling within new developments and making arrangements within homes to ensure that separation for recycling is convenient. The guidance is consistent with the standards contained within Document H of the Building Regulations 2006.
- 3.6.3 SWP intends to update the guidance shortly, to more fully reflect the requirements arising from the augmentation to 'Sort It Plus' services, including future arrangements to be provided for communal collections.
- 3.6.4 In summary, the SWP will provide:
- Internal storage:*
- 5l kitchen caddy for food waste.
 - 44l kerbside box for dry recyclables (paper, foil, glass bottles & jars, clothes & shoes, car batteries); and
 - 55l kerbside box for plastic bottles, cans and cardboard.
- External storage:*
- 23l food waste bin;
 - 180l wheeled bin for refuse; and
 - 180l wheeled bin for garden waste (optional and chargeable).
- 3.6.5 Large developments of dwellings of multiple occupancy or dwellings with particular storage/access constraints differ from the above.
- 3.6.6 The document states that residents should not be required to carry waste more than 30 metres. Furthermore, collection crews should not transport containers more than 15 metres for two wheeled containers and 10 metres for four wheeled containers.
- 3.6.7 In addition to the above, the document outlines infrastructure requirements (150mm around and between the containers, enclosed compounds minimum of 2 metres high), gradient conditions (not to exceed 1:12, no more than 3 steps), drainage, access and security requirements.
- 3.6.8 Although not the primary remit of this report, it should be noted that there would be considerable benefit in all SWP authorities formally endorsing or adopting the key recommendations / standards contained within the SWP guidance as per SWP's own recommendation highlighted in paragraph 3.6.2. This would assist SWP in driving up recycling standards 'across the board' (and not just in the eco-town developments) by ensuring that all new developments provide sufficient internal and external refuse and recycling space to facilitate householder recycling. Mechanisms for achieving this are set out in Section 11.

3.7 ADEPT guidance

- 3.7.1 ADEPT² (formerly the County Surveyors' Society) published a document in June 2010 titled 'Making Space for Waste'. This document provides a homogenous baseline of standards governing the provision that is made for waste management within new residents, commercial and mixed use developments through England and Wales. The guide provides advice and guidance for developers, local authorities and those involved with new developments.
- 3.7.2 As taken from ADEPT, the table overleaf shows the standard minimum requirements for the management of waste for new developments. This provides a summary from all relevant policy documents. This should be used in conjunction with the SWP developer's guidance (as described above) as a checklist for developers.

3.8 Other Relevant Standards

- 3.8.1 The ADEPT guidance referred to above has been designed to provide a comprehensive and homogenous baseline of standards governing the provision that is made for waste management in within new residential, commercial and mixed use developments. In doing so it draws upon many existing examples of good practice, including Code for Sustainable Homes which is referenced by both the TCPA in 'Towards Zero Waste' and the PPS1 Supplement as containing aspirational targets for eco-towns. As Section 3.4 of the ADEPT guidance document states "... *all standards and requirements proposed in this guide meet or exceed relevant British Standards and Code for Sustainable Homes requirements...*". For this reason, the standards contained within the ADEPT guidance note, along with those within the SWP guidance document, are given sole consideration in the remainder of this report.

3.9 Conclusions

- 3.9.1 The above policy documents will be used to derive a single set of 'stretch' target figures for the urban extensions. These form part of the recommendations referred to in Section 11.5 of this document.

² Association of Directors of Environment, Economy, Planning and Transport

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Table 3.1: ADEPT Guidance for waste management in new developments

Consideration	Standard Minimum Requirement
Residential internal storage requirement	Minimum total storage capacity to accommodate 60 litres of total storage capacity. Such capacity to be the aggregate sum of no fewer than 3 containers, where no individual bin has an individual capacity of less than 15 litres.
Residential external storage requirement	Minimum external storage capacity to accommodate up to 3 bins with a total capacity of between 480 and 720 litres, with no bin smaller than 40 litres. All bins should be located within 30m ² of an exterior door. External storage areas should be hard floored and if covered of sufficient height to permit the opening of the bin lids.
Commercial	Office – 2,600 litres of waste storage space for every 1000m ² gross floor space
	Retail – 5,000 litres of waste storage for every 1,000m ² gross floor space
	Restaurants and fast food outlets – 10,000 litres of waste storage space for every 1,000m ² gross floor space
	Hotel – 7,500 litres of waste storage space for every 1,000m ² gross floor space
Mixed use	Developments must provide specific segregated waste storage areas for domestic arisings and commercial waste arisings respectively. The extent of provision should relate to the specification given for commercial and domestic waste accordingly
Cigarette related litter	<ul style="list-style-type: none"> • Sufficient containers for staff, clients and customers • Sited in a convenient location and easily identifiable (signed) • Ensure that containers are adequately serviced
Residential low rise	<ul style="list-style-type: none"> • Storage locations should not be more than 30m distance from the point of collection • Collection crews should not have to carry individual containers or move wheeled containers more than 25m • Passage of a bin from store to collection point should avoid steps, but where not possible should avoid transfer over more than 3 steps • Gradients over which containers must traverse should not exceed 1 in 12 • Containers should not have to be moved through a building to the point of collection • Provision for composting should be made in all dwellings with a garden. An area of 2m x 1m should be allocated with suitable drainage
Residential flats. apartments	<ul style="list-style-type: none"> • Safe handling arrangements for caretakers/management staff when transporting waste • Conditions within freehold, lease or tenancy agreements to prescribe waste deposit areas • Effective monitoring of occupants level of compliance with the development waste storage requirements • Regular cleansing of the collection area

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Consideration	Standard Minimum Requirement
Commercial	<ul style="list-style-type: none"> • Storage locations should not be more than 30m distance from the point of collection • Collection crews should not have to carry individual containers or move wheeled containers more than 25m • Passage of a bin from store to collection point should avoid steps, but where not possible should avoid transfer over more than 3 steps • Gradients over which containers must traverse should not exceed 1 in 12 • Containers should not have to be moved through a building to the point of collection
Mixed use	<ul style="list-style-type: none"> • Storage locations should not be more than 30m distance from the point of collection • Collection crews should not have to carry individual containers or move wheeled containers more than 25m • Passage of a bin from store to collection point should avoid steps, but where not possible should avoid transfer over more than 3 steps • Gradients over which containers must traverse should not exceed 1 in 12 • Containers should not have to be moved through a building to the point of collection • Provision for composting
Infrastructure requirements	<ul style="list-style-type: none"> • Communal waste storage compound • Sufficient clearance to allow full opening of the lid • 150mm clearance space between containers to allow ease of movement • 2m minimum working height where compound is covered • 2m minimum width of access threshold to the compound to allow for removal and return of containers whilst servicing • Layout should be such that any one container may be removed without the need to move any other container
Highways and access requirements	<p>For standard waste recycling collection services, highways should adhere to the following criteria:</p> <ul style="list-style-type: none"> • Be of a minimum 5m in width • Designed to accommodate maximum reversing distance of 12m • Allow a minimum of 4.5m vertical clearance • Minimum working area of 3.5m width and 4m in length should be available where the containers are emptied
Recycling centre requirements	<p>Provision of financial contribution on a per dwelling basis to contribute towards;</p> <ul style="list-style-type: none"> • Local recycling facilities, HWRCs, enhancement of recycling containers and recycling points, provision of new recycling containers

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Bring site requirements	<ul style="list-style-type: none">• Minimum area of 15m x 5m• Container specification available from WCA• To purchase and supply suitable recycling containers to meet specifications supplied but the authority, for use on the constructed bring site• A bond of suitable financial bond will be payable to cover defects occurring on the site for a period of 5 years from the date of completion. After this time, the authority will adopt the site• The authority will undertake responsibilities for route inspection and cleaning services on the completion of the facility; at a frequency to be decided by the authority
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SECTION 4

BENCHMARKING

4.0 BENCHMARKING

4.1 Introduction

4.1.1 Section 4 details the national indices which the Government has introduced to measure waste arisings (NI191, NI192, NI193) and provides a comparison of how authorities within the Somerset Waste Partnership (SWP) are currently performing with respect to the national average. The development of WasteDataFlow, a web-based system for municipal waste data reporting by UK local authorities to Government, has allowed for comparable datasets.

4.1.2 As part of the Government's move towards 'Localism', the Comprehensive Area Assessment (CAA) system that was previously used to monitor local authority performance was abolished in June 2010. The move brings a close to the process whereby a council's performance against targets known as National Indicators – three of which are related to waste - was critically evaluated by the Audit Commission. This end acts as a move away from the 'top down' targets placed on councils.

4.1.3 However, while the CAA has been ended, the future of the National Indicator Set is less clear. The Department of Communities and Local Government has stated that the status of the National Indicators is "under consideration". "They may be stopped, they may be changed". The focus will be on how the indicators can be made to be a "localised thing" (source: press release, LetsRecycle.com, 25 June 2010).

4.1.4 A number of councils have explained that while the CAA had brought an element of 'competitiveness' between councils as they seek to achieve good results under the assessment by achieving their goals; the actual targets to be reached under the National Indicators were generally set by the councils themselves. It was also noted that, in terms of waste and recycling there were other, more cost-orientated factors, such as landfill tax, driving performance improvements.

4.2 Government statistics

WasteDataFlow

4.2.1 The development of WasteDataFlow has allowed for;

- Robust, faster and more accurate data collection of municipal waste statistics, more regularly and efficiently;
- Local data management enhancement for reporting and strategic planning; and
- Streamlined and transparent access to performance benchmarking with other authorities.

4.2.2 The system allows Government to:

- Monitor progress towards national and local targets;
- Produce National Statistics on municipal waste;
- Enable local authorities to report quarterly data under Landfill Allowance Trading Scheme³ (LATS);
- Provide an evidence base to guide Government policy.

³ The Government published its intention to abolish LATS within its *Review of Waste Policy in England*, June 2011.

4.3 England Waste Statistics 2009/10

- 4.3.1 Figures published by Defra in November 2010 revealed that England narrowly missed the 2007 Waste Strategy target for it to recycle 40% of household waste by 2010, reaching a 39.7% recycling and composting rate for 2009/10.
- 4.3.2 The Waste Strategy also contains a national residual waste reduction target of 45% (based on 2000 levels). This means reducing the amount of residual waste produced from the 22.3 million tonnes in 2000 to 12.2 million tonnes in 2020 (with an interim target of 15.9 million tonnes by 2010). This represents a reduction of 45%.
- 4.3.3 The national ‘per person’ residual waste target is 225kg by 2020. In England, in 2009/10, residual waste per person equalled 457kg, which shows that there is still considerable progress to be made in achieving the target.
- 4.3.4 The recycling targets which were set as part of the Waste Strategy for England in 2007 (WS2007) were only just missed, placing added pressure on local authorities in England to surpass those set for 2015 and 2020, as outlined below:

Table 4.1: National household waste recycling targets, WS2007

Year	Target	units
2010	Recycling and composting of household waste*	40%
2015	Recycling and composting of household waste	45%
2020	Recycling and composting of household waste	50%
2020	Residual waste	225kg/person

* ‘Household waste’ means waste from households as well as other waste, which, because of its nature or composition, is similar to waste from households (OECD).

4.4 England’s performance against KPIs

- 4.4.1 A new statutory local authority performance framework introduced in April 2008 includes three municipal waste management indicators:
- NI191 - residual household waste per household;
 - NI192 - % of household waste reused, recycled and composted; and
 - NI193 - % of municipal waste sent to landfill.

4.4.2 National and local performance against these indicators in respect of re-use / recycling / composting and residual waste generated is set out in the Sections below.

4.5 NI 192 – ‘Reuse, Recycling and Composting’

4.5.1 Of the 258 local authorities in England, 161 (62%) achieved recycling rates above the Government target of 40% in 2009/10. The tables below show the top and bottom four performers:

Table 4.2: Local authorities with highest household recycling rates in England, 2009/10

Local Authority	NI192 (% recycled)
Staffordshire Moorlands District Council	61.84
South Oxfordshire District Council	61.41
Rochford District Council	61.19
Cotswold District Council	60.40

Table 4.3: Local authorities with lowest household recycling rates in England, 2009/10

Local Authority	NI192 (% recycled)
Ashford Borough Council	15.29
Lewisham LB	16.85
Newham LB	18.80
Manchester City Council	18.82

Somerset

4.5.2

The following table shows the ranking of the five district local authorities in the SWP. Three of the five authorities exceeded the Government target of 40%.

Table 4.4: SWP authorities' household recycling performance, 2009/10

Local Authority	NI192 (% recycled)	Ranking (out of 358)
Mendip District Council	40.11	161
Sedgemoor District Council	26.83	329
South Somerset District Council	41.86	130
Taunton Deane Borough Council	45.46	77
West Somerset District Council	27.20	323
SWP	48.69	n/a

4.6 NI 191- 'Residual Waste'

4.6.1 The average quantity of residual waste generated per household in England in 2009/10 was 625kg. The tables below show the top and bottom four performers.

Table 4.5: Local authorities with lowest levels of residual household waste in England, 2009/10

Local Authority	NI191 (kg/household)
South Oxfordshire District Council	320.23
South Hams District Council	341.04
Weymouth & Portland Borough Council	345.47
Cotswold District Council	358.83

Table 4.6: Local Authorities with highest levels of residual household waste in England, 2009/10

Local Authority	NI191 (kg/household)
Newham LB	866.64
North Warwickshire Borough Council	820.67
Middlesborough Borough Council	794.42
Halton Borough Council	789.32

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4.6.2 The following table shows the ranking of the five local authorities in the SWP. All were below the residual waste generation average for England (625kg) in 2009/2010.

Table 4.7: SWP authorities' residual household waste levels, 2009/10

Local Authority	NI191 (kg/household)	Ranking (out of 358)
Mendip District Council	457.67	46
Sedgemoor District Council	596.16	237
South Somerset District Council	391.51	11
Taunton Deane Borough Council	380.14	8
West Somerset District Council	531.42	156
SWP	553.48	n/a

4.7 Overview of performance against KPIs

4.7.1 The tables above illustrate the position of Somerset's local authorities against other authorities in England, and, in equal importance, against one another. Interestingly, there is a noticeable range in performance of members of SWP. Both Taunton Deane Borough Council and South Somerset District Council have current recycling rates in excess of the Government's target of 40% and levels of residual waste well below the national average. In respect of the latter indicator it should be noted that both authorities have amongst the lowest levels of residual waste in the country, with rankings of 8 and 11 respectively.

4.7.2 As part of the strategy to maximise recycling (NI192) and minimise levels of residual waste (NI191) the SWP has rolled out a 'Sort-it Plus' scheme. The original 'Sort-it' scheme was introduced in 2005, and has been operating in three districts (Mendip, South Somerset and Taunton Deane) since 2007. The scheme collected paper, cans, glass, shoes, clothes, foil and car batteries. Following its success (2005 LARAC National Recycling Award for Best Local Authority Initiative) SWP trialed the additional collection of plastics and cardboard. Resultant successful trials have allowed the SWP to roll out new 'Sort-it Plus' collections across all five districts on the following phased basis:

- Taunton Deane – September 2010;
- Sedgemoor – November 2010*;
- Mendip – February 2011;
- South Somerset – February 2011;
- West Somerset – October 2011*.

*Weekly food waste and fortnightly refuse collections have also been introduced within the above local authority areas.

4.7.3 The residual household waste data presented in Table 4.7 above does not reflect 'Sort It Plus' as it predates the roll-out of this extended scheme outlined above. Table 4.8 below provides updated figures for residual household waste (per household and per person) in the SWP area for 2010/2011, enabling a comparison to be made with the 2010/2011 data which demonstrates the improvements associated with the scheme. The performance of Sedgemoor in particular can be seen to have improved significantly since the roll-out of Sort-It Plus. These types of improvements may be expected in the performance of those authorities introduced more recently to the scheme.

Table 4.8: SWP authorities' residual household waste levels, 2010/11

Local Authority	NI191 (kg/household)	NI191 (kg/person)
Mendip District Council	442.71	197.61
Sedgemoor District Council	439.49	199.40
South Somerset District Council	388.07	178.25
Taunton Deane Borough Council	379.98	172.09
West Somerset District Council	515.85	254.28

4.8 Household waste performance

England

4.8.1 The weight of household waste generated in 2009/10 in England, in kilograms per household, was:

1036 kg per household

of which 411 kg (39.7%) was recycled, composted or reused;
whilst 625 kg was not (residual).

4.8.2 The amount of household waste generated in the same period in kilograms per person, was:

456 kg per person

of which 181 kg was recycled; and
275 kg was not.

SWP

4.8.3 The weight of household waste generated in 2009/10 in Somerset (managed and collected by SWP), in kilograms per household, was:

1078 kg per household

of which 534 kg (49.4%) was recycled, composted or reused;
whilst 544 kg was not (residual).

4.8.4 The amount of household waste generated in Somerset in the same period in kilograms per person, was:

512 kg per person

of which 237 kg was recycled; and
275 kg was not.

4.8.5 The above shows that households in Somerset generate more waste than the national average. However, they also recycle more, hence the overall levels of residual waste are below the national average, as Table 4.7 and paragraph 4.6.2 demonstrates. This confirms the need to apply the waste hierarchy when developing future waste policy, with an emphasis on reducing waste generated as well as driving up recycling.

National target

4.8.6 A national target of 225 kg per person per year has been set for residual waste for 2020 (Waste Strategy 2007). This is already being achieved in four out of the five SWP authorities.

4.8.7 An eco town target of 150kg per person per year has been set for 2020 within the TCPA's guidance note 'Towards Zero Waste: Eco-Town Waste Management Worksheet (November 2008). Belgium are currently achieving 159 kg per person per year. This is not yet being achieved in the SWP area, although recent improvements (notably the roll out of Sort It Plus) have narrowed the gap between existing performance and this target in the majority of SWP authority areas.

4.9 Typical household waste composition

England

4.9.1 Household waste collected is composed of a wide variety of materials. There is limited compositional data available, but the best overall estimates currently available show that, on average, household waste typically consists of the following materials:

Table 4.9: Breakdown of typical household waste composition in England

Material	%
Garden waste	20
Paper & cardboard	18
Kitchen waste	17
Sweepings	9
Glass	7
Wood	5
Furniture	5
Scrap metal/white goods	5
Soil	3
Textiles	3
Metal packaging	3
Disposable nappies	2

Ref: ADEPT, 2010

SWP

4.9.2 Waste composition data was collected in 2009/10 for the Somerset Waste Partnership. The following table shows the material breakdown.

Table 4.10: Breakdown of typical household waste composition in Somerset (SWP)

Material	%	Capture rate % (WCA) SORT IT
Garden waste	18	92
Paper & cardboard	19	81 (paper) 74 (card)
Kitchen waste	15	65
Sweepings	4	0
Glass	7	91
Wood	3	100
Furniture	1	100
Scrap metal/white goods	6	0
Soil	0	0
Textiles	3	30
Metal packaging	2	0
Disposable nappies	2	0
Plastics	10	74
Other	10	-

Ref: SWP, 2010

4.9.3 The results obtained from the composition study undertaken by SWP are reflective of those in England. Both datasets show that over 50% of the waste generated in Somerset belongs to only three materials – garden waste, kitchen waste and paper.

4.10 Kerbside collection capture rates

UK

4.10.1 In 2004, 87% of UK households were being offered kerbside recycling collections; however, only 43% were being offered multi-material collections. Furthermore, only 23% of households had access to garden waste collections.

4.10.2 In 2006, Defra reported that in the UK, 94% of households receive a doorstep or kerbside collection service from their local council for recyclable materials.

Somerset

4.10.3 In Somerset 70% of households currently have access to the ‘Sort it’ recycling scheme. The Sort-it Plus scheme is currently being rolled out across the county. All Somerset districts will have the scheme by early 2012.

Best performers

4.10.4 In 2004, in the best performing recycling region, the South East, kerbside collection services were picking up at least 60kg per household per year, whereas the average was significantly below 50kg per household per year.

4.10.5 Analysis of WasteDataFlow 2008/09 indicated that the best performing authority operating 100% kerbside sort (Melton BC) achieved 239kg per household per year from kerbside collections with a weighted average of 131kg/household. Additional improvements in recycling over the past two years are likely to have resulted in performances in excess of the above.

4.10.6 While there are significant lifecycle advantages associated with kerbside sort, recent improvements in sorting technologies have also resulted in good performance levels from those authorities adopting co-mingled collections. The best performing authority in 2008/09 (North Kesteven DC) achieved 285kg per household from kerbside collections (19% more than the maximum for kerbside sort) with a weighted average of 163kg per household. Co-mingled collections have fewer constraints than kerbside sort schemes (fewer receptacles needed, single collections) resulting in potential time and cost savings by the collection authority, although more sophisticated sorting mechanisms need to be implemented at the materials recovery facility.

4.11 Household Waste Recycling Centres (HWRC)

Best performers

4.11.1 In terms of HWRC best practice, in 2004, the best performing waste disposal authorities were achieving diversions from landfill in excess of 200kg per household per year. Provision of HWRC sites in urban areas is more difficult, and in London and similar areas, diversion rates at sites were as low as 40kg per household per year.

Somerset

4.11.2 In Somerset, all materials received at HWRCs are sent for recycling or reuse. According to the latest end use register, 125,462 tonnes of collected Municipal Solid Waste (MSW) were recycled and 2,582 tonnes reused (in 2008/9). This equates to a

landfill diversion of approximately 240kg per household, thus placing the SWP authorities within the 'best performing' bracket'.

4.12 Comparison of UK and SWP's municipal waste performance against Europe

4.12.1 The following tables show where the UK and the SWP are positioned against other European Union members in terms of municipal waste generated and treated.

Table 4.11: UK municipal waste performance against EU members, 2007

Country	Municipal waste (kg/person)	% Landfilled	% Recycled	% Incinerated
Belgium	49	4	62	34
Czech Republic	294	84	3	13
Slovakia	309	82	7	11
Poland	322	90	10	0
Latvia	377	86	14	0
Romania	379	99	1	0
Lithuania	400	96	3	0
Slovenia	441	66	34	0
Hungary	456	77	14	9
Bulgaria	468	100	0	0
Portugal	472	63	18	19
Greece	488	84	16	0
Finland	507	53	36	12
Sweden	518	4	49	47
EU AVERAGE	522	42	39	20
Estonia	536	64	36	0
France	541	34	30	36
Italy	550	46	44	11
Germany	564	1	64	35
UK	572	57	34	9
Spain	588	60	30	10
Austria	597	13	59	28
Netherlands	630	3	60	38
Malta	652	93	7	0
Luxemburg	694	25	28	47
Cyprus	754	87	13	0
Ireland	786	64	36	0
Denmark	801	5	41	53

Ref: Eurostat, 2007

Table 4.12 SWP municipal waste performance, 2009/2010

County	Municipal waste (kg/person)	% Landfilled	% Recycled	% Incinerated
SWP	522	55	54	1

Ref: WasteDataFlow, 2009/10

4.13 Commercial and Industrial waste

England

4.13.1 Survey results published by Defra in December 2010 show that total commercial and industrial (C&I) waste arisings in England in 2009 were estimated to be 48 million tonnes, split evenly between commercial and industrial businesses as shown below.

Table 4.13: Commercial and Industrial (C&I) waste arisings in England, 2009

Sector	Total arisings ('000s tonnes)	%
Food, drink & tobacco	4,756	10
Textiles/wood/paper/publishing	3,449	7
Power & utilities	5,719	12
Chemical/ non-metallic minerals manufacture	3,848	8
Metal manufacturing	4,236	9
Machinery & equipment (other manufacture)	2,165	4
Industry total	24,173	50
Retail & wholesale	9,211	19
Hotels & catering	2,671	6
Public administration & social work	2,891	6
Education	1,481	3
Transport & storage	2,189	5
Other services	5,401	11
Commercial total	23,844	50
Grand total	48,017	100%

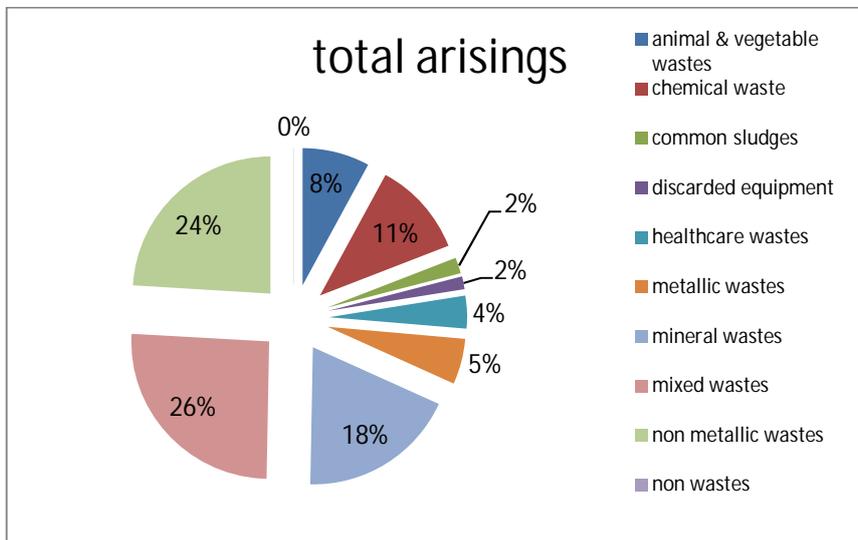
Source: Defra, 2010

4.13.2 Even when construction, demolition, excavation and mining wastes are excluded, there is almost twice as much C&I waste as household waste – about 48 million tonnes a year, compared to about 25 million tonnes of household waste.

Compositional analysis of C& I waste - England

4.13.3 The pie chart below shows the C&I waste arisings by material type.

Figure 4.1: Waste arisings by material type, 2009



Source: Defra, 2010

Waste management method - England

4.13.4 The following table outlines England's C&I waste arisings by waste management method.

Table 4.14: Waste arisings in England by management method, 2009

Waste management method	Total arisings	%
Landfill	11,259	23
Land recovery	2,163	4
Thermal treatment (energy recovery)	1,002	2
Thermal treatment	1,720	4
Non- thermal recovery	2,319	5
Transfer station	825	2
Recycling	22,974	48
Composting	707	1
Reuse	1,324	3
Unknown	3,721	8
Grand total	48,014	100

Source: Defra, 2010

- 4.13.5 The percentage proportion of waste landfilled by business has fallen from 41% (2002/3) to 23% (2009), a drop of 16.4 million tonnes. This is reflected with an increase in the recycling rate from 15% to 48% over the same period. The data above illustrates the effect fiscal and regulatory policy has had on waste arisings since 2002/3.
- 4.13.6 The amount of C&I waste undergoing treatment has increased by approximately 2 million tonnes, 1.5 million tonnes of which is going to thermal treatment.
- 4.13.7 By waste stream count, 68% of the waste streams recorded were already either reused, recycled or recovered, with 3% currently reused, 48% currently recycled and 18% recoverable. Following the grossing up to national tonnage the wastes potentially reusable, recyclable or recoverable is estimated to be 5 million. This shows the potential to further increase the diversion of C&I waste from landfill, provided the appropriate waste management infrastructure and waste management methods are in place.

National average

- 4.13.8 The 2009 survey found that 68% of England's C&I wastes was reused, recycled or recovered.

Regional

- 4.13.9 The 2009 survey also analysed C&I waste arisings by region. The table below shows the regional breakdown.

Table 4.15: Commercial and Industrial waste arisings by region, 2009

Region	Total arising	%
North East	2,357	5
Yorkshire and the Humber	6,942	15
East Midlands	6,308	13
West Midlands	5,246	11
East of England	4,506	9
London	4,810	10
South East	6,250	13
South West	4,073	8
North West	7,527	16
Grand total	48,019	100%

Source: Defra, 2010

South West

4.13.10 The 2009 survey undertaken by Defra found that the following breakdown of C&I waste management methods was used in the South West.

Table 4.16: Breakdown of waste management methods in South West, 2009

Region	%
Landfill	25
Land Recovery	4
Thermal Treatment (energy recovery)	1
Thermal Treatment	3
Transfer Station	4
Non-thermal treatment	5
Recycling	44
Composting	2
Re-use	3
Unknown	9
Total	100

Source: Defra, 2010

4.13.11 In the South West, 66% of C&I waste was reused, recycled or recovered.

4.13.12 Data collected by the Environment Agency for the South West indicated that 90% of mixed waste is landfilled.

Somerset

4.13.13 The C&I survey undertaken by SCC in 2007 found that approximately 425,000 tonnes of household-equivalent C&I waste was produced in Somerset in 2006. Of this, 41% was produced by industry and 59% by commerce. Mixed waste, of which the vast majority was landfilled, accounted for approximately 202,000 tonnes.

4.13.14 The total C&I waste arisings in Somerset in 2006 were about 525,000 tonnes.

4.13.15 The 2009 survey found that total C&I waste arisings had decreased to 489,000 tonnes. Of the 489,000 tonnes, 61% was produced by industry and 39% by commerce.

4.13.16 Unfortunately, the commerce: industry split cannot be compared as the split for 2006 was calculated based on household-equivalent C&I waste, and the 2009 on total C&I waste arisings. The following table outlines the 2009 total waste arising by sector in Somerset.

Table 4.17: Total C&I waste arisings by sector in Somerset, 2009

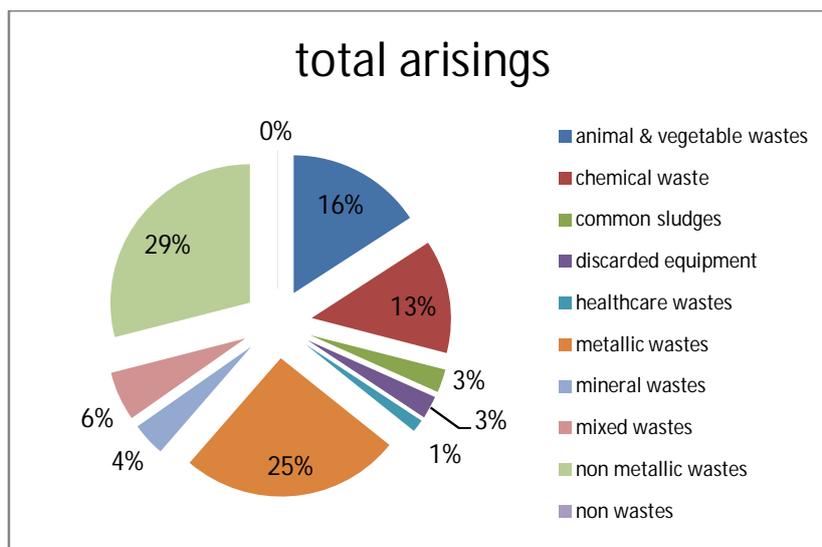
Sector	Total arisings ('000s tonnes)	%
Food, drink & tobacco	130	27
Textiles/wood/paper/publishing	72	15
Power & utilities	2	0
Chemical/ non-metallic minerals manufacture	27	5
Metal manufacturing	38	8
Machinery & equipment (other manufacture)	28	6
Industry total	297	61
Retail & wholesale	77	16
Hotels & catering	40	8
Public administration & social work	14	3
Education	14	3
Transport & storage	16	3
Other services	31	6
Commercial total	197	39
Grand total	489	100%

Source: Defra, 2010

4.13.17

The following pie chart shows the waste arisings in Somerset by material type.

Figure 4.2: C&I Waste arisings in Somerset by material type, 2009



4.13.18 When compared with the results calculated for England, Somerset has a significantly higher proportion of metallic wastes (Somerset: 25%; England: 5%) and lower mixed wastes (Somerset: 6%; England: 25%).

4.13.19 The table below shows the waste management methods employed by Somerset, and the associated figures.

Table 4.18: Breakdown of C&I waste management methods in Somerset, 2009

Region	%
Landfill	25
Land Recovery	10
Thermal Treatment (energy recovery)	2
Thermal Treatment	2
Transfer Station	4
Non-thermal treatment	5
Recycling	40
Composting	1
Re-use	3
Unknown	8
Total	100

Source: Defra, 2010.

4.13.20 In Somerset in 2009, 67% of C&I waste is reused, recycled or recovered.

4.13.21 England, the South West and Somerset are similar in terms of their waste management methods. All use landfill to dispose of approximately ¼ of their C&I waste.

4.14 Education

4.14.1 The education sector represents an important generator of waste within the C&I sector, and is likely to be a particularly relevant component within the Monkton Heathfield and Yeovil eco-towns. A WRAP report examined the nature and scale of waste produced in 24 schools in England, revealing that food waste accounted for 13% of the total waste in the primary schools and 20% in the secondary schools.

4.14.2 The 2009 C&I survey found that Education accounted for 3% of the C&I waste arisings in England, the South West and Somerset.

Other relevant findings from the 2009 C&I waste survey

4.14.3 C&I waste in England decreased by 19.9 million tonnes between 2002/3 and 2009. 13.4 million tonnes of this was from industry, however, they had seen a 18% decrease in business population during this period. The remaining 6.5 million tonne

fall in commercial waste was set against a business population increase of 12%. In a number of sectors, waste arisings fell by over 10%. These include:

- Food, drink and tobacco;
- Education;
- Chemical manufacture;
- Machinery & equipment manufacture;
- Retail & wholesale; and
- Hotels & catering.

4.14.4 The 2009 C&I survey also found that:

- 91% of the wastes recorded were solid (the remaining wastes being 7% liquid; 2% sludge);
- 93% of the wastes recorded were non hazardous (and 7% hazardous);
- 71% of businesses didn't know the type of collection contract they had in place; and
- 75% of businesses didn't know the destination of waste for treatment.

4.14.5 SMEs represent over 95% of the business population. Waste from SMEs fell to 16.6 million tonnes despite a 10% increase in SME population (30% fall between 2002/3 to 2009).

4.14.6 In terms of participant feedback, the following issues were highlighted and are relevant to this report:

- There appears a practical minimum level at which it is cost effective to segregate at source with smaller businesses not generating enough recyclate to warrant the cost of a separate collection;
- Those businesses using LA collections had little understanding of destination and fate of their waste and materials;
- Many smaller businesses did not know where to gain advice on waste management;
- Many retailers had no detailed understanding of arisings from their own sites (managed through regional/national contracts);
- A lack of understanding of what should and what should not be recycled impacted the scale and quality of segregated material;
- A number of businesses were confused by the different service offerings provided by their local authorities to businesses. For SMEs without the option to negotiate a dedicated contract it is difficult to apply consistent standards and procedures across different areas.

4.15 Conclusions / Key Issues:

- 4.15.1 Section 4 provides an overview of current national and regional waste arisings. It outlines the national recycling target (NI192), upon which local authorities are compared. The national recycling target is 40% (2010). In 2009/10 a recycling rate of 39.7% was achieved across the UK. The results across Somerset show recycling rates ranged from 27% - 45% during this period. Three of the five districts were above the national average.
- 4.15.2 The average national residual waste arisings (625kg per household) have also been compared against the performance of the Somerset districts. These range from 380kg/ household to 596kg/ household. As with the recycling rates, there is a diverse range across the county.
- 4.15.3 The Section also documents the total household waste arisings per household. In the UK the average figure is 1036kg. The SWP value is slightly higher at 1078kg. This shows that Somerset produce more waste per household but recycle more (49.4%).
- 4.15.4 The Section outlines national targets for residual waste arisings; namely the national target (for 2020) of 225kg per person per year, and the eco-town target of 150kg per person per year. The most recent figures provided by SWP (Table 4.8) show that, following the introduction of Sort-It Plus, with the exception of West Somerset District all the SWP authorities are already achieving residual waste levels below (i.e. better than) the national target of 225kg per person. The ongoing implementation of Sort-It Plus should further improve this performance, including in relation to West Somerset District which was the last authority to benefit from the expanded recycling collection in October 2011. Achievement of the eco-town target of 150kg would represent a c.13% increase in recycling within the best performing authority at present (Taunton Deane) and a 41% improvement in the poorest performing authority (2010/2011 figures).
- 4.15.5 C&I arisings have also been considered in this Section. The 2009 C&I survey found that 68% of England's C&I waste is recycled. In 2009, Somerset recycled 67% of its C&I waste. In England the C&I waste is split 50% commercial 50% industrial. The Somerset split is 40% commerce and 60% industry.
- 4.15.6 These conclusions are of assistance when considering specific targets for the proposed urban extensions, along with other proposals for improving waste management mechanisms later in this Report.
- 4.15.7 For the purposes of this report, the question is how planning for development of the urban extensions in Somerset can help bridge the gap in performance between current residual waste arisings and eco-town targets. This is considered in Sections 9 to 11.

SECTION 5

SOMERSET BASELINE

5.0 SOMERSET BASELINE

5.1.1 Section 5 examines baseline waste arising data for the Somerset Waste Partnership (SWP) as a whole, for South Somerset District (the location of the proposed eco-development at Yeovil), and for Taunton Deane Borough (the proposed site for the Monkton Heathfield eco-development). Data in this section is heavily drawn from the 2008/9 Defra WasteDataFlow, and information provided by the SWP.

5.2 SWP

5.2.1 The total population covered by the SWP comprises those households living within South Somerset, West Somerset, Taunton Deane, Mendip and Sedgemoor, the five authorities on whose behalf SWP manages recycling and waste services.

Table 5.1: Total population and households covered by SWP

Population	534,100
Households	237,381

5.3 South Somerset

Household kerbside collections

5.3.1 The following tables provide a breakdown of the household kerbside collection services provided in South Somerset.

Table 5.2: South Somerset – key kerbside collection statistics, 2009/10

Population	161,500
Households	72,186
Households covered by dry recycling/residual collections	100%
Households covered by organic collections	97%

Table 5.3: South Somerset – waste collection composition statistics 2009/10

Parameter	Units (kg)
Total waste per household	655
Residual waste per household	392
Dry recyclate per household	150
Organic per household	113

5.3.2 All of the seven ‘key waste materials’ are collected in South Somerset District. Key waste materials, as defined by Defra in the Waste Strategy for England 2007, include: paper, food, plastic, aluminium, glass, wood and textiles. These waste materials have been targeted as it is considered that these materials can achieve the greatest improvement in environmental and economic outcomes.

Bring Sites

5.3.3 In 2009/10, 944 tonnes of recyclable waste was taken to the 15 Bring sites in South Somerset.

Commercial and Industrial

5.3.4 In 2009/10, 200 tonnes of commercial and industrial waste was collected by South Somerset District Council.

5.4 Taunton Deane

Household Kerbside collections

5.4.1 The following tables provide a breakdown of the household kerbside collection services provided in Taunton Deane.

Table 5.4: Taunton Deane – key kerbside collection statistics 2009/10

Population	111,100
Households	48,738
Households covered by dry recycling/residual collections	100%
Households covered by organic collections	100%

Table 5.5: Taunton Deane – waste collection composition statistics 2009/10

Parameter	Units (kg)
Total waste per household	678
Residual waste per household	381
Dry recyclate per household	145
Organic per household	152

5.4.2 All of the seven key waste materials are collected in Taunton Deane Borough.

Bring sites

5.4.3 In 2009/10, 810 tonnes of recyclable waste was taken to the 6 Bring sites in Taunton Deane.

Commercial and Industrial waste

5.4.4 In 2009/10, 13 tonnes of commercial and industrial waste was collected by Taunton Deane Borough Council.

SECTION 6

SOMERSET PROJECTIONS

6.0 SOMERSET PROJECTIONS

6.1 Introduction

6.1.1 Section 6 outlines the key waste projections detailed in Somerset County Council's (SCC) Topic Paper 'Waste Management Need to 2028' (July 2011). The report provides a central part of the evidence base for Somerset's emerging Waste Local Development Framework Core Strategy (WCS) in relation to waste management needs.

6.1.2 The 'Waste Planning: Issues and Options (II)' document (March 2011), which comprises a consultation stage within the Waste LDF preparation process, places great emphasis on the importance and need to minimise the generation of waste at the outset. It states that:

Objective A is "...to encourage waste avoidance and reduction as a priority from the outset of new development and throughout the life of the development".

6.1.3 All the objectives within the report, as stated, have been "... designed to strengthen the link between spatial planning and service provision whilst protecting the unique environment of Somerset....".

6.1.4 The strong focus on designing out waste has been considered in the modelling and setting of targets, and ultimately will play a significant role in the writing of the WCS.

6.1.5 In the drive to make the eco-developments at Taunton and Yeovil exemplar developments, that surpass current standards, the 'Waste Management Need to 2028' report outlines SCC's ambitious yet achievable targets for future years across Somerset. The report provides reason and evidence behind the setting of their ambitious waste management approach.

6.2 Somerset's targets for Municipal Solid Waste (MSW)

6.2.1 The report provides recycling projections for MSW from 2010/11 to 2027/28. The intention behind these figures is the maximising of recycling before residual treatment. It used MSW recycling rates established by SWP for 2010/11-2027/28, which are based on SWP's assumptions about MSW to be received by HWRCs and collected at kerbside, along with calculations of non-household municipal waste arisings. It was decided to adopt these locally derived recycling rates because Somerset is already very close to meeting the Waste Strategy for England 2007 recycling targets for 2020 for household waste.

6.2.2 The graph below shows how SCC forecasts a steady increase in household recycling over the WCS period.

Table 6.1: Projected MSW Recycling Rates 2010/11 to 2027/28 (source: SWP)

09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20 to 21/22	22/23 to 27/28
48%	52%	56%	57%	58%	61%	62%	63%	65%	66%	68%	69%

6.2.3 As stated previously, Somerset already exceeds national targets for household recycling and composting, however, there is very little residual MSW treatment taking place. Currently, almost all residual MSW goes to landfill.

6.2.4 With increased pressure to divert waste from landfill, in accordance with the principles of the waste hierarchy and the national Waste Strategy 2007, the report identifies four treatment options for residual waste, as shown below.

Table 6.2: Landfill rates for SWP residual MSW treatment options – 2010-2028

Treatment option	2009/10 (current landfill rate %)	2015/16 (%)	2019/20 (%)	2027/28 (%)
Mechanical Biological Treatment	51*	7	6	6
Autoclave and Anaerobic Digestion		10	8	8
Thermal Treatment		1	1	1
Managed Flexibility		37	30	30

* Based on MSW to landfill compared with total MSW arisings bar hardcore

6.2.5 The table above shows the four treatment options currently being explored by the SWP. With the exception of 'Managed Flexibility' all see a significant decrease in residual waste going to landfill.

6.2.6 It must be noted that the report uses modelled MSW to landfill rates associated with autoclave and anaerobic digestion to calculate future projections.

6.3 Somerset's targets for C&I waste

6.3.1 As well as household recycling and landfill projections the report includes C&I recycling projections, and landfill rates.

Table 6.3: C&I Recycling Projections in Somerset to 2028

Year	2009 (DEFRA) (%)	2016 (%)	2020 (%)	2028 (%)
Recycling, re-use, composting	58	62	68	69
Recovery	13	17	19	23
Landfill	29	21	12	8

6.3.2 In keeping with DEFRA findings, SCC has seen merit in aligning MSW and C&I waste management due to similarities in terms of composition and exploiting potential to increase recycling rates, in order to further reduce the amount of C&I waste going to landfill. The baseline (2009) is based on DEFRA research.

6.3.3 Echoing the recycling rate projection alignment between MSW and C&I waste, landfill rate projections have also been aligned (see Table 6.4 below, generated from figures provided within Table 14 of the July 2011 Topic Paper..

Table 6.4: Projected capacity requirements for C&I waste (tonnes) to 2028

Year	2009 (most recent data) (%)	2016 (%)	2020 (%)	2028 (%)
Recycling, re-use, composting	58	62	69	69
Other Recovery	13	17	19	23
Landfill	29	21	12	8

6.4 Somerset's targets for Construction and Demolition (C&D) waste

6.4.1 The report also documents SCC's projections in Construction and Demolition (C&D) waste.

Table 6.5: C&D waste management rates 2010-2028:

Treatment	2008 (most recent data)	2016	2020*	2028
Reuse & other beneficial use⁴	72.0	74.3	75.8	78.9
Inert landfill	4.9	4.1	3.5	2.5
Non-hazardous landfill	9.1	7.6	6.6	4.6
Transfer	10.1	14.0	14.0	14.0
HWRCs	3.9	0.0	0.0	0.0
Total	100	100	100	100

**Included to ensure compliance with revised EU Waste Framework Directive*

6.4.2 The 2008 base year is based upon Environment Agency data and shows that the current estimated combined total amount of C&D waste disposed of to landfill in 2008 accounts for approximately 14%.

6.4.3 The report acknowledges the strong uptake of WRAP's half waste to landfill commitment, and on this basis a 50% reduction in C&D waste to landfill has been modelled against the 2008 baseline figures.

6.4.4 As with household and C&I waste, this report forecasts a significant shift away from landfill as a treatment option for C&D waste.

6.4.5 The report documents a strong emphasis on diversion from landfill for all waste streams.

⁴ Includes metal recycling and inert waste crushing

SECTION 7

**PROPOSED WASTE TARGETS FOR URBAN
EXTENSIONS**

7.0 PROPOSED WASTE TARGETS FOR URBAN EXTENSIONS

7.1 Introduction

7.1.1 This Section proposes a set of targets for the proposed urban extensions, based on current best practice across the UK and the specific advice and targets for eco-towns contained within those documents reviewed in Section 2. In doing so it accords with the principles established when the eco-towns were initially conceived; namely that they should represent exemplar developments with higher than average levels of environmental performance. This Section also draws on feasibility research which looks at what can be achieved in terms of recycling. In addition, in developing the targets, specific requirements for eco-developments have been taken into consideration. The targets are ambitious and require innovative thinking if they are to be met in year one of occupation.

7.1.2 The targets have been set solely with the two eco-developments in mind. Due to the fact that these two developments are at design stage, it should be possible, through careful and pro-active planning, to incorporate all necessary measures to ensure the targets outlined in this section are met. It is envisioned that, over time, the new initiatives and services offered to the eco-developments could be rolled out across the county. The targets would then become county wide.

7.2 Proposed targets – household waste

Kerbside recycling

7.2.1 Research shows that at least 80% of household waste can be recycled or composted. This, combined with the recycling rates of the best performing local authority (62%) and eco-town target of 70% have been the basis for the setting of a **proposed 70% recycling target** for both eco-developments **in year one** of occupation. A target of **75% recycling is proposed for 2020**.

Capture rate

7.2.2 It is proposed that the eco-developments should seek to achieve a 100% collection capture rate for the seven key material groups (paper, food, plastic, aluminium, glass, wood and textiles as defined by Defra in the Waste Strategy for England 2007). This represents an aspirational target, which has been set whilst recognising that there may be practical difficulties in achieving the full 100% - for example, not all glass is recyclable and a small minority of people will remain resistant to recycling.

7.2.3 Currently there is a large gap between county capture rates and the 100% target, as demonstrated by Table 7.1 below, therefore, a phased approach will be necessary. It is proposed that a **year 1 target of 80%** is set increasing to **100% in 2020**.

7.2.4 Table 7.1 outlines the key materials and the current SWP capture rate.

Table 7.1: Current capture rates in SWP for Defra 'key materials' (2009/2010)

Waste stream	SWP 2009/10 WCA SORT IT capture rate (%)
Paper and card	81 and 74
Food waste and garden waste	65 and 92
Cans	64
Glass	91
Plastic	74
Wood	0
Textiles	30

7.2.5 The SWP has an average Waste Collection Authority (WCA) capture rate (across all materials) of 51% (2009/10), and a WCA capture rate of 57% (2009/10) across the seven key material types outlined above.

Waste generation

7.2.6 In line with the proposed recycling target and forecast waste arisings, **150kg of residual waste per person** has been set as a working target for **Year 1** (in line with the Government's target for eco-towns). In recognition of the current performance rates of the Somerset authorities, and in order to promote the establishment of exemplar developments, a stretch target of **130kg per person** is proposed for future years.

7.3 Proposed targets – commercial and industrial waste

7.3.1 With pressure to provide a more integrated approach to resource management and convergence in policy between business and household wastes, it is ambitious yet realistic to set commercial and industrial waste targets in line with household waste targets. Therefore a target of 70% recycling is proposed for C&I waste arising from the eco-development in year one of occupation. A 75% target is proposed for 2020.

7.4 Proposed targets – construction and demolition waste

7.4.1 This is covered in Report C. The targets are included in the target summary in section 9.8.

7.5 Achievement

7.5.1 Sections 9 to 12 of this Report outline ways in which these targets can be achieved.

7.6 Monitoring

7.6.1 Monitoring of progress against targets is likely to be most appropriately undertaken by SWP through collation and analysis of data sets provided by the waste collection contractors, and local authority quarterly reporting figures (wastedataflow). Waste monitoring for the eco-towns would require the isolation of datasets specific to each urban extension. It is considered this would need to be undertaken via a bespoke reporting process in order to isolate the performance of these settlements from that of the wider districts within which they are located. This would be likely to require the

installation of waste segregation and weighing technology within RCVs in order to allow isolation of the figures for the waste collected from the eco-town developments within the vehicles' payloads, or the use of dedicated RCV trips in respect of the larger eco-towns. Depending upon the agreed way forward in respect of C&I waste (see Section 9) the system would also need to provide for the acquisition of figures in respect of collections of C&I waste.

7.6.2 Data reporting might form part of the waste Local Development Framework (LDF) Annual Monitoring Report (AMR) process, or the AMR for the district LDFs concerned.

7.7 Maintaining

7.7.1 The SWP will review the waste management performance of the Somerset districts on a regular basis, and seek to find new ways of maintaining high recycling and diversion from landfill figures, and innovative methods to enable residents and businesses to reduce the amount of waste they produce.

7.8 Summary of key targets

7.8.1 The following table summarises those targets proposed in respect of recycling and residual waste for the two urban extensions. Targets for C&D waste relate to those proposed in Report C.

Table 7.2: Proposed waste targets for urban extensions and best practice equivalents

Waste stream	Best practice target	Urban extension target (yr 1)
Household waste		
Residual waste per person per year	150kg (eco town) 225kg (national 2020)	150kg (year 1) 130kg thereafter
Kerbside capture of seven key recyclables (paper & card, wood, garden & kitchen waste, cans, glass, plastic, textiles).		100% (aspirational target)
Recycling and recovery	62%	70% re-use / recycling 100% including recovery
C & I waste		
Re-use, recycling and recovery	68% (England average)	70% re-use / recycling 100% including recovery
Diversion from landfill	100%	100%
C & D waste		
Recycling and recovery	80%(recycling) 100% (with recovery)	90%(recycling) 100% (with recovery)
Diversion from landfill	100%	100%

SECTION 8

**PREDICTED WASTE ARISING FOR URBAN
EXTENSIONS**

8.0 PREDICTED WASTE ARISING FOR URBAN EXTENSIONS

8.1 Introduction

8.1.1 Section 8 uses the guidance BS5906:2005 'Waste Management in Buildings – Code of Practice', and data calculated in Section 6 to forecast likely waste arising for the two eco-developments in South Somerset and Taunton Deane along with the Yeovil urban village. In undertaking these forecasts, the proposed waste targets set out in Section 7 of this Report have been assumed. Forecasts have been calculated for households; offices, food outlets; hotels; shops; and industry.

8.1.2 The figures set out in Section 2 of this report in respect of the anticipated development mix and quantum at both Monkton Heathfield and Yeovil have been used in undertaking these calculations. Due to limitations in available data, particularly in respect of the Yeovil developments, some assumptions have had to be made in order to undertake certain elements of the assessments, while in some places there is insufficient data to undertake meaningful assessment. These instances are highlighted in the relevant sections.

8.1.3 The figures derived within this section of the Report provide a quantitative basis for determining necessary capacity provision within the urban extensions, which will aid the subsequent consideration of technologies, standards and potential innovations required to ensure the implementation of sustainable waste management measures within the subsequent sections of this Report.

8.1.4 The units of measurement used within this section of the Report comprise a variety of kgs and litres. This variation is due to the equation which the calculations stem from, which is in turn related to the varying densities of different waste materials.

8.2 South Somerset – Yeovil Urban Extension

Household waste (kerbside collection)

8.2.1 Based upon the projections set out in Section 6, the following table outlines anticipated annual household waste arising for the urban extension at Yeovil. These have been calculated based on the assumption that 151 new homes will be built, and an assumed recycling rate of 70% for year 1, as proposed in Section 7.2.

8.2.2 The calculations assume 70% recycling in accordance with the target established in the preceding section. It has been assumed that the remaining 30% should be subject to recovery in order to achieve 100% diversion from landfill.

Table 8.1: Anticipated household annual waste arising – Yeovil urban extension

Waste stream	Total (kg) based on current performance	Total (kg) 70% recycling
Total waste	2,436,000	2,436,000
Residual waste	1,462,000	731,000
Dry recycle	560,000	1,023,000
Organic	414,000	682,000

8.2.3 The first column demonstrates the likely total waste generation, dry recycles and organics reclaimed, and residual waste requiring treatment / disposal for the new settlement assuming that current patterns of performance within South Somerset are

maintained. The second column assumes the improved performance (increased recyclates and organics reclaimed, lower residual waste) with measures in place to achieve 70% recycling.

Household waste composition

8.2.4 The following table shows the likely annual household waste arisings by material type from the eco-development based on the 2009/10 household waste compositional analysis data from wastedataflow.

Table 8.2: Likely composition of annual waste arisings – Yeovil urban extension

Material	%	Kg
Garden waste	18	439,000
Paper & cardboard	19	464,000
Kitchen waste	15	366,000
Sweepings	4	98,000
Glass	7	171,000
Wood	3	73,000
Furniture	1	24,000
Scrap metal/white goods	6	146,000
Soil	0	0
Textiles	3	73,000
Metal packaging	2	49,000
Disposable nappies	2	49,000
Plastics	10	244,000
Other	10	244,000

C&I annual waste arisings- Yeovil urban extension

8.2.5 Similar calculations have been undertaken for commercial and industrial waste, insofar as is possible given existing information relating to the Yeovil urban extension. Due to data limitations, some assumptions have needed to be made in order to calculate possible arisings for education (typical school size values in terms of pupil numbers has been used to calculate waste arisings for primary (200) and secondary (1000) schools). Insufficient information exists to allow any predictions in respect of office or retail development. A 70% recycling rate (year 1) has been assumed in accordance with the recommendations outlined in Section 7.3.

Table 8.3: Anticipated C&I annual waste arisings – Yeovil urban extension

Building	Waste arisings (unit)
Office	?
Supermarket (large)	?
Multiple stores	?
Primary school	5,000l
Secondary school	25,000l
Employment	189,840l

8.3 South Somerset – Yeovil Urban Village

8.3.1 A similar exercise has been carried out in respect of household waste for Yeovil urban village, where a further 151 housing units are proposed, together with 1,100 square metres commercial floorspace and a 60 bedspace hotel.

8.3.2 A 70% recycling rate for year 1 has been assumed as with the urban extension. The information portrayed displays similar characteristics to that for the urban extension, as described in paragraph 8.3.2.

Table 8.4: Anticipated household annual waste arisings – Yeovil urban village

Waste stream	Total (kg) based on current performance	Total (kg) 70% recycling
Total waste	99,000	99,000
Residual waste	59,000	30,000
Dry recycle	23,000	50,000
Organic	17,000	19,000

Household waste composition

8.3.3 The following table shows the likely annual household waste arisings by material type from the urban village based on the 2009/10 household waste compositional analysis data from wastedataflow.

Table 8.5: Likely composition of annual waste arisings – Yeovil urban village

Material	%	Kg
Garden waste	18	17,800
Paper & cardboard	19	18,800
Kitchen waste	15	14,800
Sweepings	4	4,000
Glass	7	7,000
Wood	3	3,000
Furniture	1	1,000
Scrap metal/white goods	6	6,000
Soil	0	0
Textiles	3	3,000
Metal packaging	2	2,000
Disposable nappies	2	2,000
Plastics	10	9,900
Other	10	9,900

C&I annual waste arisings- Yeovil urban village

A series of calculations have been undertaken for commercial and industrial waste using the available information regarding non-residential development at Yeovil urban village.

Table 8.6: Anticipated C&I annual waste arisings – Yeovil urban village

Building	Waste arisings (unit)
Office	230 kg
Hotel	9,420 kg

8.4 Taunton Deane – Monkton Heathfield Urban Extension

Household waste (kerbside collection)

8.4.1 Based upon the projections set out in Section 6, the following table outlines anticipated annual household waste arisings for the urban extension at Taunton. These have been calculated based on the assumption that 5,356 new homes will be built, and an assumed recycling rate of 70% for year 1, as proposed in Section 7.2.

Table 8.7: Anticipated annual household waste arisings – Monkton Heathfield

Waste stream	Total (kg) based on current performance (2009/10)	Total (kg) 70% recycling
Total waste	3,631,000	3,631,000
Residual waste	2,033,000	1,089,000
Dry recyclate	762,000	1,525,000
Organic	835,000	1,017,000

8.4.2 As with Yeovil, the first column demonstrates the likely total waste generation, dry recyclates and organics reclaimed, and residual waste requiring treatment / disposal for the new settlement assuming that current patterns of performance within South Somerset are maintained. The second column assumes the improved performance (increased recyclates and organics reclaimed, lower residual waste) with measures in place to achieve 70% recycling.

Household waste composition

8.4.3 The following table shows the likely annual household waste arisings by material type from the eco-development based on the 2009/10 household waste compositional analysis data from wastedataflow.

Table 8.8: Likely composition of annual waste arisings – Monkton Heathfield

Material	%	Kg
Garden waste	18	610,000
Paper & cardboard	19	644,000
Kitchen waste	15	508,000
Sweepings	4	136,000
Glass	7	237,000
Wood	3	102,000
Furniture	1	34,000
Scrap metal/white goods	6	203,000
Soil	0	0

Textiles	3	102,000
Metal packaging	2	68,000
Disposable nappies	2	68,000
Plastics	10	339,000
Other	10	339,000

C&I Annual waste arisings- Monkton Heathfield

- 8.4.4 A series of calculations have been undertaken for commercial and industrial waste, using the available information regarding non-residential development at Monkton Heathfield, as set out in Table 2.1. Due to data limitations, some assumptions have needed to be made in order to calculate possible arisings for education (typical school size values in terms of pupil numbers has been used to calculate waste arisings for primary (200) and secondary (1000) schools). A 70% recycling rate (year 1) has been assumed in accordance with the recommendations outlined in Section 7.3.

Table 8.9: Anticipated C&I annual waste arisings – Monkton Heathfield

Building	Waste arisings (unit)
Office	1,680 kg
Supermarket (large)	25,520 kg
Multiple stores	8,000 kg
Primary school	15,000l
Secondary school	25,000l
Employment	94,920l

8.5 BS5906:2005 Waste Management in Buildings – Code of Practice

Typical weekly arisings and subsequent storage requirements

- 8.5.1 BS5906:2005 is a code of practice for methods of storage, collection, segregation for recycling and recovery, and on site treatment of waste from residential and non-residential buildings and healthcare establishments. It is applicable to new buildings, refurbishments and conversions of residential and non-residential buildings, including but not limited to retail and offices.
- 8.5.2 It is acknowledged that figures calculated using this Standard are averages, and therefore a source of information intended for guidance only. Actual waste arising data submitted to WasteDataFlow by Somerset County Council will provide a more reflective dataset upon which to base future projections.
- 8.5.3 The table below uses the BS5905:2005 to calculate potential waste arisings for each of the eco-development building types. This data has then been apportioned to appropriate refuse receptacles, taking account of the type of development proposed in each instance, in order to provide an estimate of necessary bin storage. Cross-hatched entries indicate those instances where insufficient information exists to undertake the calculations.

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- 8.5.4 For domestic properties, the calculations are based on the assumption that 5,356 new dwellings will be built in Monkton Healthfield, 151 in the urban village in Yeovil, and 3,719 in the eco-development in Yeovil; all with an average of 3 bedrooms per dwelling.
- 8.5.5 The table taken from BS5905:2005 below provides an estimate of the storage requirements associated with waste from residential and non-residential buildings, retail and offices using the available data for the urban villages. It therefore provides guidance to masterplanners and developers regarding the likely waste storage requirements for each settlement, presented in the form of a variety of alternative refuse receptacles / containers (e.g. number of 80l bins, or 120 l bins, or 240 l bin, etc to accommodate waste in each proposed development). Waste in this context relates to total waste (i.e. no differentiation between residual and recyclable waste).
- 8.5.6 Where insufficient information exists to carry out a BS5906:2005 assessment, the previous British Standard (BS5906: 1980 'Code of Practice for Storage and On-Site Treatment of Solid Waste from Buildings') has been used to calculate the likely waste arisings. These are the figures in bold within the table.

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Building	Equation for weekly waste arisings (total waste)	Urban Village, South Somerset (151 units)	Eco-development South Somerset (3,719 units)	Eco-development Taunton Deane (5,356 units)	80l bin/bag (30kg)	120l bin equivalent (60kg)	240l bin equivalent (100kg)	660l bin equivalent (270kg)	720l bin equivalent (310kg)	1100l bin equivalent (450kg)
Domestic	No. of dwellings x (volume arising per bedroom [70l]) x average no. of bedrooms [3] + 30	29,590l			370	247	123	45	41	27
Domestic	No. of dwellings x (volume arising per bedroom [70l]) x average no. of bedrooms [3] + 30		781,020l		9,762	6,509	3,254	1,183l	1,085	710
Domestic	No. of dwellings x (volume arising per bedroom [70l]) x average no. of bedrooms [3] + 30			1,124,790l	14,060	9,373	4,687	1,704l	1,562	1,023
Office	Volume arising per employee [50l] x no. of employees 1.68 kg per person (based on 10m²/person)	1372m ² (230kg)		1000m ² (168 kg)	6 8	3 4	2 3	1 1	1 1	1 1
Hotel	3.0kg per m²	3,140m ² (9,420kg)			118	79	39	14	13	9
Supermarket (large)	Volume per m ² of sales area [150l] x sales area 5.8kg per m²			4,400m ² (25,520 kg)	851	425	255	95	82	57
Multiple stores	1 kg per m²			8,000m ² (8,000 kg)	267	133	80	30	26	18
Industrial unit	Volume per m ² of sales area [5l] x sales area		189,840l		2,373	1,582	791	288	264	173
Industrial unit	Volume per m ² of sales area [5l] x sales area			94,920l	1187	791	396	144	132	86

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PREDICTED WASTE ARISING FOR
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Building	Equation for weekly waste arisings (total waste)	Urban Village, South Somerset (151 units)	Eco-development South Somerset (3,719 units)	Eco-development Taunton Deane (5,356 units)	80l bin/bag (30kg)	120l bin equivalent (60kg)	240l bin equivalent (100kg)	660l bin equivalent (270kg)	720l bin equivalent (310kg)	1100l bin equivalent (450kg)
Primary school	1,500l per 100 pupils (waste)			10,500m ² (3 x 3,500) (assuming 200 pupils) 5,000l x 3	189	126	63	24	21	15
	1,500l per 100 pupils (recycling)				63	42	21	8	7	5
Primary school	1,500l per 100 pupils (waste) 1,500l per 100 pupils (recycling)		3,500m ² (assuming 200 pupils)		63	42	21	8	7	5
Secondary school	1,500l per 100 pupils (waste) 1,500l per 100 pupils (recycling)			8,000m ² (assuming 1000 pupils) 25,000l	313	208	104	38	35	23
Secondary school	1,500l per 100 pupils (waste) 1,500l per 100 pupils (recycling)		8,000m ² (assuming 1000 pupils) 25,000l		313	208	104	38	35	23

Due to the preliminary design stage of the eco-developments there is limited information available on the building specifications. Details are limited to floorspace. Taking this into consideration, BS 5906:1980 'Code of practice for storage and on-site treatment of solid waste from buildings' equations have been used to indicate likely waste arisings and subsequent waste storage requirements in respect of specific elements.

SECTION 9

PROPOSED MEASURES

9.0 PROPOSED MEASURES

9.1 Introduction

9.1.1 This Section outlines the proposed measures that Somerset County Council (SCC), Taunton Deane Borough Council (TDBC) and South Somerset District Council (SSDC) together with the Somerset Waste Partnership (SWP) should consider in determining i) future waste planning policy in respect of Eco-towns and ii) specific measures which should be incorporated within the urban extensions in order to help drive waste up the hierarchy, to meet the targets set out within Section 7 of this Report, and to facilitate the move towards zero waste development. It also includes recommendations that are generally applicable for consideration across the SWP area as a whole.

9.1.2 In order to emphasise the prioritisation of measures, the recommendations are set out in themes which broadly correspond to those contained within the 'waste hierarchy'.

9.1.3 The recommendations contained within this Section highlight a range of measures which together will help to achieve the targets contained within the preceding section. The recommended measures are discussed in the subsequent paragraphs, and summarised in the yellow boxes within each sub-section. Section 11 provides further detail regarding the mechanisms by which the recommendations may be achieved, including potential mechanisms for levering in the necessary finance.

9.2 Waste reduction

9.2.1 National (1036kg/person) and regional datasets shows that currently total per household waste generation in Somerset is high (1078kg per person). One of the key measures for the new extensions is a strong focus upon waste reduction. There is considerable scope to reduce current waste arisings through waste reduction, reuse and avoidance measures.

Composting

9.2.2 Data provided by WRAP indicates that in South Somerset, 10% of households and in Taunton Deane, 15% of households own a composter compared with a figure of 10% nationally (WRAP, 2010). SWP figures suggest that around 75,000 compost bins have been sold in Somerset to date. In addition, surveys conducted by SWP reveal that many households make their own compost bins or obtain bins from other sources. Based on this anecdotal evidence, the percentage of households in Somerset with composters is likely to be nearer 35-40%.

9.2.3 Home composting is recognised as one of the most cost effective ways of reducing the amount of waste put out for collection by households. WRAP estimate the average diversion for each home composting bin distributed is approximately 160kg per year. If carried out well, home composting is the best environmental option for managing most food and garden wastes. It avoids the need for transport both to a processor and user, and provides a readily available soil improver.

9.2.4 Household waste data for SWP shows that garden waste has a capture rate of 95%. This coupled with potential diversion rates for home composting could significantly reduce household waste arisings. Supportive policies have been used to maximise home composting capture ('Maximising Recycling Rates, Tackling Residuals', Eunomia, undated). These include:

- mandate upon local authorities to implement services in respect of source separation which exceed minimum requirements;
- mandates upon households to engage in source separation or home composting;
- producer responsibility mechanisms which channel financial support to local authorities where they collect materials covered by legislation (for packaging, the only countries in the EU where no direct compensation for local authorities is made for packaging collection are the UK, Denmark and the Netherlands);
- residual waste levy, in which local authorities are given 'per inhabitant quotas' of residual waste, and exceeding this quota triggers a unit levy on the additional residual waste; and
- in many places, a system of 'Master Composters' (comprising volunteers who encourage people in their local community to start composting at home, and offer support to people who are already home composting) has been introduced to complement home composting.

9.2.5 Somerset already has a team of 30 compost champions, comprising volunteers who attend community events, give talks and promote composting in a variety of ways.

9.2.6 Home composting allows homeowners to recycle both household green and organic waste. This aids the segregation and capture of food as well as garden waste. Household waste data for SWP currently shows low food waste capture (36%, 2009/10). At the county level, the focus initially needs to be on increasing the food waste capture rate using some of the supportive policies outlined above. European experience suggests that capture rates for food waste are higher using collection systems that focus on food waste only, rather than systems that collect both food and garden waste. As with garden waste, collection systems should be viewed as the next best option to home composting.

9.2.7 One way to seek to improve the household management of green and organic waste is by securing the provision, by developers, of home composters with each new dwelling in the eco-development. SWP has indicated that they strongly support this suggestion in relation to houses with gardens, but do not support communal composting for flats. SWP is, however, planning to provide communal food waste collections, and would support a requirement that green grounds waste be composted by a responsible contractor.

9.2.8 In addition, SWP data shows that none of the 3,908 tonnes of compostable paper generated by households is currently captured. There is scope for this to be incorporated in the home composter. This could be achieved principally via a programme of education, raising awareness of the potential for composting paper and providing an indication of which paper is suitable for composting and which is not.

9.2.9 Community composting has had mixed success. Much of this has been dependent upon levels of community cohesion, and deprivation-related variations. Both urban extensions could benefit from a community based composting system, provided that the above issues are addressed.

9.2.10 Defra have set out a new long term goal to eliminate peat use by all gardeners, growers and procurers by 2030 at the latest, by switching to more sustainable, peat free alternatives. This provides market opportunities for the use of by-products from other industries, such as bark and wood from timber industries and waste products,

such as food and garden waste. Defra claim that green waste compost "...is likely to be available in the largest quantities and could play an essential role in replacing peat...". Defra acknowledges that this would be dependent on the compost being produced to the correct quality.

- 9.2.11 Two relevant WRAP publications include:
- Guidelines for the Specification of Quality Compost for Use in Growing Media; and
 - Compost Production for Use in Growing Media – a Good Practice Guide.
- 9.2.12 In addition to this, a recent report by the Soil Association has revealed that mined phosphorous, which is widely used by farmers as fertiliser, is set to run out after 2033 and compost is likely to become a more valuable commodity as a result. Composting experts have pointed out that compost, particularly that produced using green and food waste, is an excellent source of phosphorous and is already used by many farmers across the UK. One expert said that the loss of mined phosphorous was likely to lead to an increase in prices for compost.
- Local Waste Exchange*
- 9.2.13 Research shows the creation of local waste exchange networks have been invaluable in diverting materials from landfill. Systems such as Freecycle, Snaffleup, and Green Metropolis all encourage the reuse of materials. Freecycle, Freegle, and other such groups are very active in Somerset.
- 9.2.14 The development of the eco-town extensions in Somerset provides a good opportunity to set up / promote a local hub for the exchange of unwanted items, which in turn will also facilitate the development of community ties and social leverage. SWP considers that this could be best and most cost-efficiently achieved via the promotion of an existing group such as Freecycle or Freegle, as smaller local alternatives very rarely prove sustainable and so funding this would nearly inevitable represent poor use of funds.
- 9.2.15 An assessment undertaken by the SOFA project found that 68-82% of the furniture deposited at CA sites and collected through bulky waste collections in Avon could be repaired, reused or recycled. The SWP WCA recycle 100% of furniture. However, none of the bulk waste collections are recycled (SWP.2009/10).
- 9.2.16 Other local authorities substantiate the findings of the SOFA project, through the setting up of successful community payback schemes. The schemes extend the life of goods through repair or refurbishment. The good is then sold/given back to the community. The schemes are also responsible for maintenance of local areas.
- 9.2.17 As an example, the BedZED⁵ development in Surrey operates a community system of clothes and furniture swaps. When residents first moved to BedZED a swap shop was set up, where residents took unwanted items and exchanged them with other residents for items that they did want. This scheme continues through the BedZED residents' email group.

⁵ Beddington Zero Energy Development, the UK's largest mixed use sustainable community, located to the west of Croydon in Surrey

Paper

9.2.18 Paper and card account for almost a third of all household waste collected for recycling. Furthermore, about one fifth of the contents of household dustbins consist of paper and card, of which half is newspapers or magazines. This is equivalent to over 4kg of waste paper per household each week. Paper is a key area that SCC and SWP need to focus on in terms of waste reduction. There are a number of paper waste prevention initiatives and guidance documents that could be used to inform householders of ways to use paper efficiently and most importantly prevent use in the first place. This is also important for businesses in the eco-developments.

Recommendations:

9.2.19 The following practical measures have the potential to facilitate waste minimisation within the eco-towns. Further detail, along with possible planning mechanisms for delivering certain measures is provided in Section 11.

RECOMMENDATIONS:

- Provision of composting facilities in conjunction with residential dwellings with garden space – an external compost bin and sealed internal organics storage bin (to be secured via specific planning guidance and planning condition);
- Provision of communal composting facility for flats / apartment schemes (subject to staffing / management and regulatory / licensing issues; to be secured via specific planning guidance and planning condition);
- Community composting scheme in the larger urban extensions (potential for funding via s.106s);
- Implementation of master composters' scheme within the urban extensions (potential for funding via s.106s);
- Local promotion of exchange mechanism for unwanted items at the outset of the development via community information releases, local website, community workshop / events;
- Initiate a community waste reduction campaign (designing out waste) with particular focus on household paper use. Hold a community workshop to disseminate information, along with other opportunities for community information release as outlined above.

9.3 Recycling performance

9.3.1 The highest recycling rates for 'bin' waste are achieved by kerbside collection services. Performance depends on the services and the characteristics of residents served. Critical features in ensuring successful schemes include:

- Range of materials collected (materials that make the greatest contribution to recycling performance by weight are those that account for the majority of bin waste – food, garden, cardboard, paper, glass);
- Convenience to residents;
- Reliability of collection service;
- Customer care; and
- Effectiveness of the service introduction and on-going promotion.

Measures to facilitate / promote effective waste management by occupiers:

9.3.2 Another important factor in recycling performance is adequate provision of storage space within and outside the home or business to accommodate recyclables and residual waste. The way in which buildings are designed, and their relationship to the surrounding environment, can have a significant bearing upon the effectiveness of day to day waste management by their occupiers. This is true of both residential and commercial buildings. This is recognised in paragraph 35 of PPS10 (Planning for Sustainable Waste Management) which states that:

“... Good design and layout in new development can help to secure opportunities for sustainable waste management, including for kerbside collection and community recycling as well as for larger waste facilities. Planning authorities should ensure that new development makes sufficient provision for waste management and promote designs and layouts that secure the integration of waste management facilities without adverse impact on the street scene or, in less developed areas, the local landscape....”.

9.3.3 The following measures are important in facilitating waste minimisation and recycling by building occupiers, while at the same time ensuring that wider design and environmental aspirations for the proposed eco-towns are fulfilled:

- **Ensure adequate provision of dedicated internal storage for both waste and recyclates, allowing occupiers to separate at source.** This is relevant to both residential and commercial (offices, shops, factories etc) buildings. At BedZED, every home incorporates a colour coded, segregated under-sink bin: green for compostable vegan waste, two grey sections - for glass, plastics, paper and tins, and brown for non-recyclables. This facilitates separating and transporting the materials to the corresponding outside bins.
- **Ensure adequate provision of dedicated external storage for waste and recyclates.** For houses with side or rear access, there should be a dedicated space for storage bins within the external curtilage of the dwelling, in an unobtrusive location, and a suitable means of moving waste containers from the rear of the property to the front. For terraced houses and those with no side or rear access, enclosed storage areas should be provided within the curtilage to the front of the property. For flats / apartments a communal covered storage area should be provided.
- All waste/recyclate storage areas should be **well located** in relation to the property to facilitate ease of use.
- All waste / recyclate storage areas should be **well designed** so as not to detract from the visual appearance of the property or the wider streetscene. There is the potential for design of such facilities to be in keeping with the general characteristics of the main building – e.g. use of pitched roof, brick or stone enclosure. They need to be located off the highway and, in the case of communal facilities, with a view towards minimising the potential for adverse amenity issues eg noise and odour. Storage areas should also be designed having regard to the principles of ‘Secured by Design’ in order to ensure that they do not inhibit natural surveillance, or themselves create areas which can be used for anti-social behaviour.

9.3.4 Early consultation with SWP regarding the waste storage requirements for the proposed eco-towns is encouraged. As referred to in paragraph 3.6.2, SWP recommends that the standards contained within its guidance document ‘Design

Requirements for Residential Properties – Recycling & Waste Management’ should be adopted for the proposed eco-towns.

RECOMMENDATIONS:

- Provision of internal storage space in accordance with recommended standards;
- Provision of external storage space in accordance with recommended standards and with due consideration to issues relating to location and design; and
- Early consultation with SWP regarding waste storage requirements.

9.4 Waste collection

9.4.1 The following paragraphs outline specific issues of relevance to the collection of recyclable and residual waste, with associated recommendations aimed at driving a reduction in the amount of residual waste and consequent increase in materials recycled. Consideration is given to household waste, general municipal waste generated within collective / community areas, and commercial and industrial waste generated by the business sector.

Household waste

9.4.2 The following section considers firstly design measures of relevance to the facilitation of waste collection and secondly targets a selection of specific waste streams wherein potential exists to drive up recycling rates by capturing them from the waste stream.

General measures to facilitate collection by WCAs

9.4.3 In the same way that careful consideration to the design of storage provision for recyclable waste can facilitate occupiers’ rates of recycling, similarly the collection of these materials should be given careful consideration at the design stage. Recommended measures should include the following:

- For individual dwellings, there should be bin collection points adjacent to the highway where receptacles can be easily collected by collection crews;
- Communal bin stores should be accessible to the collection crews;
- Access roads should be designed with sufficient space to enable the access and manoeuvring of waste collection vehicles, preferably in forward gear.

Small WEEE

9.4.4 Waste Electrical and Electronic Equipment (WEEE) falls into five categories:

- large household appliances;
- fridges/freezers;
- TVs and monitors;
- gas discharge lamps;
- all other (mixed) WEEE.

- 9.4.5 Research undertaken by WRAP indicates that only one third of WEEE waste (3.2kg/yr) is captured each year, the remainder ends up in residual waste (18.0kg/yr). A recent study conducted by North Lincolnshire Council confirmed these findings; it found that 14.6kg of small WEEE was placed in the residual bin annually.
- 9.4.6 A number of local authorities have trialled small WEEE collections. SWP has indicated that consideration is being given to the addition of small WEEE to kerbside collections, together with compliance scheme support.

Batteries

- 9.4.7 There have been a number of successful kerbside battery collection trials undertaken by councils. From March to September 2008 Bury St Edmunds borough council collected approximately 8 tonnes (equates to 444,000 AA size) batteries.



- 9.4.8 A three year study commissioned by WRAP involved 940,000 households across the UK trialling one of six battery collection methods. The results suggested that council operated kerbside schemes are the most cost effective way to collect household batteries. Over the course of the trial, kerbside collections captured by far the most batteries per capita - working out at an average of 81 grams as opposed to 34g for postal, 22g for retail take-back and 12 grams for community drop-off.



- 9.4.9 The report showed that kerbside collections yielded an average of 7.9 batteries collected per household during the trials, compared to just 1.7 for retail take-back, 1.04 for community drop-off and 2.9 for the postal option, with a similar pattern for the estimated weight collected per capita.
- 9.4.10 The highest average set-up costs were recorded by the postal trial, which cost an average of £10,800 per scheme, although the service was found to be effective for people with no access to kerbside facilities. This was compared to £3,800 for a kerbside service run by the community sector, £5,300 for local authority-run kerbside collection and £8,100 for retailer take-back.
- 9.4.11 SWP has indicated that the use of battery bags is already under consideration as an addition to kerbside collections, together with compliance scheme support.

Bulk Items, including large WEEE

- 9.4.12 The amount of recoverable material present in bulky waste is a key factor in determining potential diversion rates. Table 9.1 shows the approximate percentage of material estimated to be reusable.
- 9.4.13 Waste analysis data suggests that, by weight, WEEE makes up approximately ¼ of bulky waste⁶. Overall, the figures suggest that at least a third of bulky goods material is potentially reusable.⁷
- 9.4.14 SWP currently charges to remove large WEEE / bulky goods from homes. They have indicated that they would not support proposals for free WEEE and bulky goods collections, as this runs counter to the Somerset Councils' policy to charge.

⁶ Parfitt. 2002, Analysis of household waste composition and factors driving waste increased, WRAP
⁷ ReZolve

Table 9.1: Potential proportion of recoverable bulky waste

Type of bulky waste	%
Hard furniture (chair, table, chest of drawers, bookcase, cupboard, etc)	49
Soft furniture (bed, sofa, armchair, mattress)	31
Other furnishings (carpets, underlay, bath, sink, toilet)	18
General (bike, ironing board, seesaw, duvet, roof felt, ladder)	49
Large WEEE (cooker, washing machine, fridge, tumble dryer, dishwasher)	30
Other WEEE (lawnmower, record player, TV, video, computer, fan)	36

Source: Network Recycling, 2005

Wood

- 9.4.15 SWP currently collects wood in conjunction with garden waste, with branches up to 100mm diameter accepted. Wood can also be taken to HWRCs where it is recycled, composted or used for energy recovery. Wood is a material the government wish to see collected as it is a valuable resource and easily recycled. Wood currently makes up 3% of the household waste, approximately 20kg per household per year. It is possible that a bag could be provided for wood which is placed with the garden waste bin for collection (these could be reusable and emptied into a dedicated area within the RCV) although it should be noted that this proposal is not supported by SWP.

Street sweepings

- 9.4.16 Currently, the SWP does not capture the 9,558 tonnes of street sweepings produced annually. A study undertaken in Milton Keynes (2001) found that a high proportion of street sweepings consisted of leaves, paper and card – much of which could be suitable for composting and low-grade use.
- 9.4.17 Norwich City Council collects approximately 1,700 tonnes of street sweeping each year. It mainly consists of grit, leaves, soil, sand and gravel. It is estimated that approximately 85% is sent to a commercial waste company for use as topsoil. A similar scheme could be introduced in the eco-towns.

Litter

- 9.4.18 Currently, Somerset does not have recycle bins in public places, and there is excellent potential for such a scheme to be introduced / piloted within the eco-towns.
- 9.4.19 Defra published a voluntary code of practice 'Recycle on the Go' in 2008 which sets out key principles for those who wish to offer facilities for recycling alongside those for litter in public places. The focus is on litter and offering people opportunities to recycle items, wherever they may be, by making recycling a natural part of everyday life.
- 9.4.20 Recycling banks for plastic bottles and cans have been installed in Chelmsford and South Woodham Ferrers High Street.
- 9.4.21 New dual litter and recycling bins were introduced throughout Bedford Town centre in December 2009, and within the first two months just over half a tonne of plastic bottles and cans had been collected.



Commercial and industrial waste

- 9.4.22 In Somerset, as in the rest of the UK, the primary collection route for C&I waste is via private sector contract, and hence very little C&I waste is currently collected by SWP. Much is removed as mixed waste and is not source separated. Many companies do not have the space to segregate waste streams. SCC has the opportunity to integrate C&I waste collections with household collections to offer all waste generators the same recycling service. Key to the ability to achieving this is the identification of the source of the waste so that household and C&I waste can be told apart. This could be achieved through a specific collection vehicle but this would tend to defeat the object of a combined collection. One possible approach would be the use of coloured bags for household / C&I waste. Alternatively, RCVs with segregated capacity could be used, although this would be an expensive and less flexible approach.
- 9.4.23 Integration with current household services would allow for both economies of scale and greater efficiency. This move will be fundamental in achieving C&I targets documented in SCC's Waste Management Needs to 2028 document.

Schools

- 9.4.24 Recycling collections are currently provided to all schools in Somerset, and SWP has long supported a waste education programme in local schools (although funding has recently been reduced). There is scope to increase proactively the waste minimisation and recycling currently undertaken at schools in Somerset.
- 9.4.25 The presence of recycling facilities at school has been proven to raise children's awareness about waste and recycling, raise parents' awareness, as well as that of teaching staff. Furthermore, school visits to waste management facilities allow children to make the link between waste and reuse. WRAP have undertaken a number of studies looking at different approaches to collecting dry recyclables and food waste from schools.
- 9.4.26 A key finding was that food waste was a major component of waste from schools, estimated to account for almost half of the waste from primary schools in England and almost a third of waste, by weight, from secondary school in England.
- 9.4.27 The report suggests that, over a school year (40 weeks) a total of 55,408 tonnes of food waste is generated by primary school in England and 24,974 tonnes by secondary schools, giving a total food waste weight of 80,382 tonnes. This equates to roughly 72 grams per pupil per day in primary schools and 42 grams per pupil per day at secondary school.
- 9.4.28 The majority of food waste in both secondary (77%) and primary (78%) schools was found to be avoidable. 'Avoidable food' refers to "... *any food waste item typically intended for consumption...*" including uneaten fruit, unopened or partially eaten yoghurts, unserved dinners and damaged or 'gone off' food.
- 9.4.29 There are two key elements in seeking to achieve more sustainable management of waste at schools, firstly, and most importantly, waste minimisation. The second element is the correct segregation and recycling of the waste streams through the introduction of various containers.
- 9.4.30 SCC, as local education authority, can assist in the facilitation of first of the above elements, subject to liaison with SWP which is best placed to implement many of the necessary practical measures. Sufficient funding would need to be available to support the educational measures necessary to secure waste minimisation.

Successfully introduced waste awareness schemes and local authority waste facility site visits could significantly reduce waste generation, and that send to landfill. The second element would be dependent upon the provision of adequate space for the storage and sorting of waste in the first place, which would need to be secured through the planning system. Section 11 provides more information on these measures.

Other Public Buildings

9.4.31

Those measures outlined above in respect of schools – namely the provision of adequate waste storage and separation space within the building design, supported by measures to encourage waste minimisation by future occupiers - could equally be applied in respect of other public buildings, such as hospitals, polyclinics, libraries, surestart centres etc.

RECOMMENDATIONS:

- Ensure that new developments are designed with adequate space for waste storage and separation, and having due regard to the operational requirements of waste collection authorities;
- Ensure early consultation with SWP when considering waste collection requirements;
- Consider free large WEEE and Bulky waste collections (maximum per household per year before payment);
- Implement small WEEE collection as part of kerbside recycling scheme;
- Consider the use of household battery bags that form part of household collections, and the use of battery collection tubes for commercial purposes which incur a collection charge;
- Consider the introduction of wood collection bags that form part of the garden waste bin collection;
- Collection of street sweepings as part of sweeper duties with sweepings sent for processing;
- Consider the introduction of dual litter and recycling bins throughout eco-towns developments;
- Trial the integration of MSW and C&I waste collection within the proposed urban extensions;
- Ensure appropriate education / information programme to facilitate waste minimisation in schools;
- Ensure provision of facilities for recycling within all new schools and other public buildings.

9.5 Communications

- 9.5.1 Variations in recycling performance are dependent on two key factors; capturing all materials that make the greatest contribution (garden and food waste, paper, cardboard and glass), and understanding the characteristics of residents served. However, the success of schemes is also dependent to a large extent upon the effectiveness of the associated communications strategy. The following paragraphs provide examples of best practice approaches to communications, and represent measures that have the potential to be implemented within the eco-towns.
- 9.5.2 On 1st March 2009, Hounslow LBC launched their new waste services. The information was communicated via the council website, a teaser leaflet, a recycling guide, new containers, livery, door knocking, bill boards, lamppost banners, tube station ticket barriers, and posters. The campaign saw an increase in recycling rate from 23 - 33% to a participation rate of 70%.
- 9.5.3 The Christmas Campaign in December 2009 was promoted at roadshows and in the council's magazine to promote food waste recycling and waste reduction. There was a good response from members of the public.
- 9.5.4 The WEEE Campaign in June 2010 promoted new collection of WEEE from the kerbside recycling. Hounslow LBC are still waiting to assess the impact.
- 9.5.5 A recent survey found that 72% of industry experts believe low public awareness of recycling of waste electrical goods is one of the biggest challenges faced by the sector (see paragraphs 9.3.4 to 9.3.5). The same will undoubtedly be true for batteries (see paragraphs 9.3.6 to 9.3.9), so cohesive and consistent awareness campaigns are important to encourage households to think more carefully about how they dispose of their WEEE and their waste batteries.
- 9.5.6 When WEEE producer compliance scheme Repic set up a regional recycling fund, Leicestershire County Council (LCC) was one of the first local authorities to apply for a grant to support its county-wide publicity campaign to boost small WEEE recycling. Part of this initiative included a simple competition whereby every Leicestershire resident taking a small electrical item to one of the County Council's 14 recycling and household waste sites was given a scratchcard with a 1-in-16 chance of winning a range of prizes, including holiday vouchers worth £200.
- 9.5.7 By the end of the campaign, LCC had generated a 45% increase in the level of small WEEE items collected for recycling – a phenomenal result which demonstrates the power of public awareness in encouraging households to recycle.
- 9.5.8 As well as collecting a larger proportion of the county's WEEE, the project demonstrated unequivocally that engaging the public is a really effective way of enhancing the proportion of WEEE and batteries collected by councils. REPIC is now keen to hear from other councils planning to run their own recycling campaigns so that we can replicate these results across the country.
- 9.5.9 It should be noted that SWP already implements a considerable number of measures similar to those described above. This good practice is capable of being built upon in order to assist the eco-towns in becoming exemplar developments for waste minimisation, recycling and recovery.

- 9.5.10 There may also be a specific role for social media in communicating good environmental practice for the eco-town developments, not only in respect of waste. The introduction of an eco-town/community website from the outset would foster community spirit and disseminate bespoke information about the eco-town and its 'mission'. It could also provide a forum for feedback and discussion between new residents, and could also support some of recommendations within this report e.g. local exchange systems.

RECOMMENDATIONS:

- Use of community roadshows to publicise available recycling measures;
- Competitions and incentive schemes to encourage participation in specific recycling schemes;
- Waste facility open days;
- Leaflets to explain the benefits of recycling and the facilities available;
- Videos uploaded on to SCC website;
- Community website for each eco-town.

9.6 Planning Measures

- 9.6.1 Planning measures are considered specifically at Section 11 of this report. Key among these recommendations is the adoption of the SWP Developer Guidance on waste facilities within new development, and this is considered at part 11.5 in section 11.

9.7 Energy Recovery

- 9.7.1 This topic is the subject of a separate report (Delivering a Resources Plan for Somerset's Urban Extensions: Report B – Integrating Waste to Energy) and measures to facilitate this form of waste management are not considered in detail in this document.

9.8 Conclusion

- 9.8.1 The recommendations outlined within this Section provide guidance on potential measures that could be employed within the urban extensions initially, and potentially within the wider SWP area in the longer term, as a means of ensuring that the targets set out in Section 7 of this Report can be achieved, if not exceeded.

SECTION 10

INNOVATION

10.0 INNOVATION

10.1 Introduction

10.1.1 Section 9 detailed a number of measures to assist SCC reduce the volume of waste likely to arise from the new developments. It also provides a number of suggestions designed to maximise the recycling of waste arisings.

10.1.2 Section 10 examines innovative solutions to deal with the collection of waste in an environmentally sustainable manner. It details a number of emerging innovative technologies that have the potential to be 'designed in' to new developments at the planning stage. Section 10.2 provides an overview of such technologies, while section 10.3 provides a summary of their potential suitability within the context of the urban extension proposals.

10.1.3 There is little technical literature describing the use of modern, non conventional methods, of refuse collection. Until recently, only conventional methods were used, which basically have been the same for the last few centuries. Refuse is collected onto vehicles and transported as far as possible from its place of origin for its final treatment. More recently, refuse collection vehicles (or 'RCVs') have been equipped with crushers and compactors designed to reduce the volume of the refuse. However, conventional refuse collection is still a manual method: 80% of its total cost is accounted for by labour.

10.1.4 Similarly, little improvement has been seen in the health and environmental aspects of conventional collection. In most highly developed countries, refuse is still left in the street before being collected, which can lead to environmental problems. However, there are emerging technologies, such as pneumatic refuse collection, which offer a new and completely different solution to the problem of refuse collection in residential areas. The following paragraphs briefly outline this technology, along with other innovative means of collecting and storing waste prior to treatment.

10.2 Waste collection

Underground pneumatic waste collection system

10.2.1 Under this system, refuse is conveyed pneumatically by underground pipeline from its place of origin (housing, commercial premises, etc.) to a collection centre or particular truck, where it is loaded into hermetically sealed containers and compacted before being conveyed to the place for final treatment. The method could be defined as a pneumatic sewer system in which the refuse is collected and transported automatically.

10.2.2 Even though pneumatic waste collection systems have been around for decades, they are experiencing an upsurge in popularity, as cities are becoming increasingly aware of the problems related to conventional methods of waste collection. Since Envac installed the underground vacuum waste system at Forum House, the 4,200 unit residential development at Wembley City carbon emissions generated by waste collection vehicles have reduced by 90 per cent and the recycling rate at the end of 2009 was between 40 and 45 per cent – twice that of the London average.

10.2.3 Users of the pneumatic waste collection system deposit their refuse into waste inlets (generally 1.5m above ground, with the remainder of the inlet system located beneath the surface) located around the chosen operating area. Waste collection points are placed outdoors or indoors and are accessible 24 hours a day. There is one waste

inlet for each type of refuse (which will typically be divided into mixed waste, organic waste and paper waste). Alternatively, the waste can be sorted at recycling centres. In this case, there is only one waste inlet per collection point. The refuse is temporarily stored by the waste inlets until the next emptying cycle.

- 10.2.4 The refuse is then transported along the pipelines (typically 500mm diameter steel pipes that are hermetically welded) into containers at the waste station (in some case up to 2km from the waste collection points). When full, the containers are sent away for further processing.



- 10.2.5 Pneumatic waste collection systems provide notable long-term cost savings. As well as savings from reduced personnel costs, waste vehicle and fuel costs, there are various ways in which automated waste collection systems benefit not only the city image but the environment. One of the main environmental benefits is reduced CO₂ emissions, which is a result of reduced waste vehicle traffic. Reduced waste vehicle traffic also means a more pleasant and safe environment for people living in the area where the system is in use.
- 10.2.6 Typical application areas for pneumatic collection systems include large metropolitan and residential areas, high-rise buildings, public spaces, healthcare facilities, and hotel and office complexes. This system has economic benefit for 1,000 occupancies or more. The system could be introduced in conjunction with a sink waste disposal unit to minimise waste generation.
- 10.2.7 Outdoor waste points are preferred for sparsely populated areas because of their lower construction costs. It is often a good idea to equip residential outdoor waste inlets with locks to prevent unauthorized usage. An alternative method is to use RFID (Radio Frequency Identification) tags to identify the users. This allows for distribution of waste handling costs based on the actual usage – typically one collection point serves 100–150 residents.
- 10.2.8 Pneumatic conveying systems are rapidly gaining ground in the waste industry, and many new projects are in the planning stages or already in development in various countries. The city of Helsinki, in Finland, and the neighbouring city of Vantaa are planning to incorporate pneumatic waste collection systems into their new urban development projects.
- 10.2.9 Helsinki has several important urban development projects underway. Construction of the Jätkäsaari residential area will begin soon on the city’s southern peninsula. According to plans, the area will be complete by the year 2023. When completed, the total development, covering over 200 hectares will house around 16,000 residents and about 6,000 workplaces. Helsinki has decided to handle the waste management of the new Jätkäsaari area with a pneumatic conveying system. The number of waste

collection points will be about 350, and the daily system capacity about 22,000 kg of waste. It is estimated that the total residential waste per annum is about 6.4 million kg and the total office waste about 550,000 kg. This is the first major pneumatic waste conveying system installed in the city of Helsinki.

Deep collection system (MOLOK)

10.2.10 Molok Ltd is the inventor, developer and marketer of a deep collection system for solid waste. It is suitable for use in communal / public locations as well as for single and multi-family residential use, and in conjunction with business and commercial enterprises, and allows the collection of mixed waste, paper, cardboard, organic waste, glass, metal and hospital wastes.



10.2.11 The system is based on a vertical design, with two-thirds of the container installed underground and emptied by lifting the inner collection bag and releasing the locking system at the bottom. Waste is emptied into RCVs, a process which takes around 3 minutes per unit. The design has greater capacity than conventional containers and also allows compaction of materials via gravity, thus saving space above ground. It also offers improvements in relation to hygiene and odour compared with more conventional systems.

10.2.12 Because of the large capacity of Molok deep collection containers, the intervals between emptying are usually longer than for standard surface containers. This provides the increased economic and environmental benefits associated with reduced transportation.



Chute collection system

- 10.2.13 Chute systems are considered to be suitable for commercial and residential blocks of more than four storeys, as recommended in BS:5906. Material is delivered to a central collection point, therefore reducing operational costs. In compliance with the Code for Sustainable Homes, different chutes would be required for different waste streams. Alternatively, a single chute could be used with an automated movement deflector plate activated by residents, thus allowing for the segregation of recyclable waste from residual waste.
- 10.2.14 There are a number of maintenance issues associated with chute systems; these include: the requirement for a wash-down, blockages, noise, and enforced separation.

Concierge collection system

- 10.2.15 The concierge system is another waste collection system suitable for communal residential and commercial premises. It utilises a management team, who collect the wastes from bin stores on each floor and transfer it to larger communal bins in the basement, prior to collection by RCVs.

Superlizzy compaction system

- 10.2.16 The Superlizzy is a waste compacting machine equipped with compacting screw system and continuous compaction. There is a single opening for waste introduction, with automatic opening controlled by proximity sensors.
- 10.2.17 During compacting the device automatically separates liquid and solid waste providing a space saving of up to 90% on traditional methods. One machine replaces 4-8 traditional containers.



- 10.2.18 The compacted solid waste is collected into a special bag while the liquid part is collected into a reservoir or discharged directly into sewers.
- 10.2.19 The Superlizzy is an effective waste collection solution for commercial enterprises such as fast food outlets, cafeterias, leisure facilities and airports but may also offer potential for residential area use – if inputs can be managed effectively. Clients currently using the Superlizzy include McDonalds (40% of restaurants); KFC; and Newcastle International Airport.

Minima compaction system

- 10.2.20 The Minima is an easy to operate, electrically powered machine that individually compacts steel and aluminium cans, plastic bottles and tetrapak containers to approximately 20% of their original bulk.

10.2.21 The use of the Minima reduces CO₂ emissions by up to 65% - one truckload of crushed cans and bottles equates to four truckloads of uncrushed cans and bottles. The device therefore reduces waste costs and increases recycling, while it also saves on storage space and the frequency of collections.

10.2.22 The Minima is aimed at the commercial sector, and represents an effective waste collection solution for offices and schools but which again might have applications within residential developments.



Rocket Composter

10.2.23 The Rocket composter is a large metal container which composts waste food of all kinds using a small amount of additional heat to bring the mixture up to a high temperature to kill unwanted bacteria. The end result is compost which then needs an additional period to complete rotting down after which it is safe to use. This offers potential as part of a community approach to waste management and devices could be sited as part of masterplanned waste infrastructure within a residential layout – with the opportunity for integration as part of a community garden/allotment provision.



10.2.24 The composter range comes in four different sizes; the A500 (up to 900 litres/week), A700 (up to 1400 litres/week), A900 (up to 5250 litres/week) and A1200 (up to 7000 litres/week). Each is specially designed for the safe and hygienic on-site processing of organic wastes, in compliance with animal by-product regulations. Depending on the model, power consumption ranges from 12kWh per week (A500) to 30kWh per week (A1200).

10.2.25 The systems are suitable for the on-site processing of:

- Cooked and uncooked meat and fish;
- Cooked and uncooked fruit and vegetables;

- Garden waste; and
- Animal waste (including some bedding).

10.2.26 Currently, Rocket composters are in operation at a wide range of sites throughout the UK. Users include: East Sussex County Council (A900); Brunel University; Warwickshire County Council (A500); River Cottage (A700); British Petroleum (A900); HM Prison Service (A900); and Exxon Petroleum (A1200).

Glass crusher

10.2.27 Glass and bottle crushers reduce labour and waste collection costs for hotels, pubs, clubs, restaurants and other catering establishments. They produce non sharp glass cullet. Use of a glass crusher can reduce glass storage space requirements by up to 80%. 100% of glass is recyclable.



10.3 Potential for use of innovative technologies in the urban extensions

10.3.1 Section 10.2 provides a brief overview of the types of technology available to facilitate waste minimisation, waste separation to aid recycling, and waste collection, both at the individual business / premises level, and for consideration across a wider area. There is the potential for consideration of some of these types of technology for the proposed urban extensions at Monkton Heathfield and Yeovil, along with the urban village at Yeovil. The table below provides an overview of the extent to which the technologies reviewed above could be suitable in this context.

Table 10.1: Summary of potential for use of innovative waste technologies in urban extensions

Technology	Potential suitability?		
	MHUE	YUE	YUV
Underground pneumatic waste collection	✓	✓	X
Deep collection system	✓	✓	✓
Chute collection system	✓	✓	✓
Concierge collection system	✓	✓	✓
Waste compaction systems eg Superlizzy, Minima	✓	✓	✓
Composting systems eg Rocket	✓	✓	✓
Crushing systems eg glass crusher	✓	✓	✓

SECTION 11

PLANNING MECHANISMS

11.0 PLANNING MECHANISMS

11.1 Introduction

11.1.1 Much of the success of the recommendations outlined within the preceding sections is dependent upon the implementation of measures by the relevant waste collection / disposal authorities – in this case Somerset Waste Partnership / Somerset County Council. However there are also important ways in which the planning system has the potential to facilitate more sustainable waste management. The development of the proposed urban extensions provides a unique opportunity to ensure that adequate, efficient and effective mechanisms to support waste minimisation, together with waste re-use and recycling, are ‘designed in’ from the outset. There will also be a need to ensure an integrated approach which ensures that the adopted mechanisms within the eco-towns are capable of implementation alongside the existing mechanisms operating within the wider settlements of Taunton and Yeovil. The ideal outcome will be to ensure that the eco-towns act as exemplar developments, operating to higher standards of waste minimisation, delivering greater levels of re-use and recycling and generating lower levels of residual waste, in a manner which ultimately facilitates driving up standards within the wider SWP area.

11.1.2 Planning for effective waste management must be seen as an integral part of the overall planning approach for the Somerset eco-towns, both at the macro-scale and at the individual development level. Examples of the former could include designing in innovative systems, such as underground pneumatic waste collection systems, or deep collection systems, at the masterplanning stage, or examining the potential for synergies with energy recovery via the incorporation of EfW or AD facilities into the design masterplan. At the individual development scale the challenge will lie in ensuring that all developments are designed in such a way that facilitates residents’ and businesses’ ability to re-use, recycle, and compost, in order to minimise the amount of residual waste requiring treatment.

11.1.3 In each stage of the above, the emphasis should be upon the minimisation of waste, followed by the promotion of re-use and recycling in accordance with the principles of the waste hierarchy.

11.1.4 The following sections examine a series of different planning mechanisms that could be implemented in order to secure the delivery of the measures outlined.

11.2 Identification of sites for waste management within the design masterplan

11.2.1 The urban extensions (and urban village) will not themselves be of sufficient scale to generate a need for new residual waste treatment facilities. However they may present opportunities for the siting of a facility or facilities suitable for the treatment of residual waste for the wider Somerset area, particularly if there is potential to harness energy from waste as part of a decentralised energy system to serve the planned development. These issues are considered in more depth in a number of recent reports undertaken on behalf of SCC and district authorities including the following:

- *PPS1 Supplement Study: Planning and Climate Change*, Arup, September 2010;
- *Sustainable Energy and Buildings – Background Paper*, South Somerset District Council, October 2010; and
- *Delivering a Resource Plan for Somerset’s Urban Extensions: Report B - Integrating Waste to Energy*, Parsons Brinckerhoff, July 2011.

- 11.2.2 Furthermore, there may be a requirement for waste transfer / sorting facilities within the urban extensions to deal with waste generated by the proposed developments.
- 11.2.3 Paragraph 36 of PPS10 advises that waste management facilities should be well-designed, so that they contribute positively to the character and quality of the area in which they are located. It is important that the requirement or opportunity for any waste management facilities is considered in full at the design / masterplanning stage for the proposed developments, in conjunction with any potential for district heating, in order to ensure optimum location and design. This will require liaison between SCC, TDBC or SSDC (as appropriate), SWP and the developers / promoters of the scheme.
- 11.3 Identification of specific infrastructure requirements within the design masterplan**
- 11.3.1 Section 10 identifies various innovative measures for waste collection, one of which comprises the underground pneumatic waste collection facility. The feasibility of this measure would need to be considered in detail prior to its being progressed. However any such measure would represent a key element of infrastructure, and would to an extent inform, and be informed by, the emerging design for either development at masterplanning stage. As with the location of any waste management facilities, this issue would need to be considered as part of the masterplanning process, and with appropriate liaison between relevant parties as highlighted in the paragraph above.
- 11.3.2 Furthermore, as indicated in section 11.2, the potential provision of district heating should also be considered at the masterplanning stage, in conjunction with any proposals for residual waste treatment. Any such system would comprise a key element of infrastructure which would need to be progressed as part of the emerging design proposals.
- 11.3.3 More conventional waste management infrastructure probably presents better opportunities for achieving change in the standard of waste management in new development. Key among such opportunities should be the requirement as part of either planning conditions or S106 Obligations for the developer to provide or pay for the bins needed to deliver the waste management system provided for in the design layout. This would be a small cost per dwelling but would make a real difference in delivery.
- 11.4 Potential relevance of Community Infrastructure Levy tariff in respect of waste infrastructure**
- 11.4.1 The capital costs of the construction of such infrastructure could form part of a development tariff levied under the *Community Infrastructure Levy (CIL) Regulations 2010*. CIL comprises a tariff, imposed at a rate set locally by a charging authority, to "... fund infrastructure to support the development of its area...". It is applicable to developers on a range of projects, subject to some exemptions, including minor developments. The levy must be charged in £ per square metre of net additional floorspace. Charges must be set out within a charging schedule, which must be supported by an evidence base and subject to statutory consultation.
- 11.4.2 It is suggested that further consideration be given by SCC and the Somerset districts to the establishment of a low carbon infrastructure fund, paid into by developers, for the installation of renewable energy infrastructure. An appropriate policy framework

would be required to be in place in order to facilitate further investigation of, and implementation of such a levy at the district level.

- 11.4.3 It is not considered that CIL is likely to be applicable to the ecotown developments as the new schemes will be well advanced in the planning process before CIL proposals have been prepared for Taunton Deane and South Somerset councils. However, beyond the ecotowns there is no reason why development-level waste recycling infrastructure could not be funded through this mechanism where it can be incorporated into the Infrastructure Delivery Plans of the districts. The strongest potential is likely to exist in facilities that can be provided within public realm and Recycling On the Go waste receptacles are an example of local level infrastructure that could be funded by CIL. However, without a strong established prescription for the type of waste infrastructure provision to be made at the individual development level it will be difficult to make best use of CIL and therefore it is considered that S.106 funding, secured for individual schemes is likely to be a more realistic and flexible approach.

11.5 Introduction of design codes and supplementary planning guidance

- 11.5.1 A priority recommendation is the adoption of guidance detailing considerations that should be taken into account in designing new residential and commercial developments to ensure effective waste management within the eco-developments. This could take the form of a bespoke document (e.g. a Supplementary Planning Guidance Document or 'SPD') or a section within the masterplan or design code for the development. An SPD would need to provide guidance specific to a defined policy or policies within the adopted development plan.

- 11.5.2 The SWP Developers Guidance document forms a strong candidate for taking forward as the basis for this SPD and could be adopted as SPD by the individual LPAs via a broader design policy contained in each Core Strategy. It is important that the policy link is based on design since the LPAs do not have a waste planning remit and would not be able to adopt a waste-led as opposed to design-led document.

- 11.5.3 Such a document could address the following issues:
- Standards for indoor storage of refuse and recyclables (residential and commercial buildings);
 - Standards and guidance for outdoor storage of refuse and recyclables (including composting);
 - Guidelines for road layouts to ensure optimum RCV access and manoeuvrability;
 - Requirements for contributions or off-site measures (via s.106 agreement) arising from specific developments (e.g. 'Recycling on the Go' facilities in connection with retail / food and drink development);
 - Requirements for the effective management of construction and demolition waste (all development types);
 - Recommendations for consultation with SWP as part of pre-application discussions;
 - Guidelines on waste documentation to accompany planning applications (e.g. waste audit, waste management strategy, or bespoke section covering waste within the Design & Access Statement).

11.5.4 SWP considers that the highest levels of recycling would be achieved if recycling arrangements can be fully integrated into new developments, by making arrangements within homes to ensure separation for recycling is as convenient as possible, so that residents are helped to make full use of recycling services and minimise rubbish put out for disposal. The following comprise the recommended standards for the storage and separation of different waste streams within the eco-towns. These have the potential to be adopted on a development-wide basis as standards to which future developers should conform.

11.5.5 The following standards draw upon those standards currently advocated by SWP in respect of household waste, and along with standards and guidance promoted by ADEPT.

Household Waste:

11.5.6 The standards currently recommended by SWP for external waste storage in their guidance document ‘Design Requirements for Residential Properties – Recycling and Waste Management’ – have been developed in order to facilitate ‘Sort It Plus’ and are intended to provide guidance in respect of new build and redeveloped residential properties. It is recommended that these should be adopted within the eco-towns, in order to ensure that all new dwellings have sufficient storage space to facilitate the effective implementation of Sort It Plus across the development. The standards for external storage are set out below.

Table 11.1: Recommended standards for external storage of household waste

ISSUE: HOUSEHOLD WASTE EXTERNAL STORAGE		
Development type	Requirement	Additional requirements
For domestic dwellings suitable for individual containers:	Sufficient storage space must be provided for: 1 x 180l wheeled bin for refuse 2 x kerbside boxes (1 x 44l and 1 x 55l) 1 x food waste bin as a minimum	It may be worth considering reducing the 180l bin to 140l for smaller dwellings (2 bedroom) in order to support the wider measures to reduce the amount of residual waste generated by households.
For domestic dwellings with gardens:	As above, plus external space for an additional 180l green wheeled bin.	
Flats / communal households:	1 x small (660L) four wheeled refuse bin per 3 dwellings <i>or</i> 1 large (1,100L) refuse bin per 6 dwellings <i>and</i> Set of 4 free-standing 240L recycling bins <i>or</i> 4 x 240l bin unit with frame / sign per 10-15 dwellings	Adapted from SWP guidance taking maximum recommended refuse provision. Adapted from SWP guidance taking minimum recommended recycling provision.

Development type	Requirement	Additional requirements
All residential	Discuss / agree specific storage requirements with SWP at the design stage.	If an 'innovative' means of waste collection is proposed, for communal dwellings (e.g. chute collection system) these standards may not apply directly, but the overall quantum of provision will remain.

Source: adapted from 'Design requirements for residential properties – recycling and waste management, Somerset Waste Partnership, March 2010

11.5.7 The SWP guidance recognises the need for facilitating waste segregation within the home (section 8) as a means of facilitating waste segregation at source and encouraging more effective use of collection facilities to divert recyclable / compostable material from landfill. It states that storage for recycling containers and food waste caddies in the home must be conveniently located, easy to access and kept clean. In the case of communal blocks, a well designed area within each dwelling discourages residents from placing containers in communal areas which can contravene fire regulations.

11.5.8 As no specific guidelines are set out by SWP for internal storage, the following ADEPT guidelines are recommended for adoption.

Table 11.2: Recommended standards for internal storage of household waste

ISSUE: HOUSEHOLD WASTE INTERNAL STORAGE		
Development type	Requirement	Additional requirements
All domestic dwellings	Storage for at least 3 separate bins with a minimum of 30 litres total capacity. Every bin must have a capacity of at least 7 litres.	Bins to be located in an adequate internal space – this should be convenient to the kitchen or utility room. SWP will also provide a 5 l kitchen caddy for internal storage of compostable materials but this will not engender significant storage requirements.

Source: Making Space for Waste: Designing Waste Management in New Developments, ADEPT, June 2010

Home Composting:

11.5.9 The ADEPT guidance note recommends the following in respect of composting:

Houses – home composting areas should be carefully designed as part of the garden, and not merely placed in a convenient area which may not be appropriate. A 2m x 1m area should be provided with a suitable sized composter and adequate drainage. Householders should have easy access to the composting area from a

kitchen or utility area. The composter could be a traditional compost bin or a 'wormery' compost pot⁸, or both.

Flats – for multi-unit residential developments of five dwellings or more, communal composting facilities could be considered, where composting can be incorporated into the landscaping plan for the development. Wormery compost bins are identified as being suitable for properties without access to a garden.

Community compost sites – such sites, where the community has responsibility for maintenance and for conveying waste to the sites, are encouraged. However, proposals for such sites must identify a clear source of year on year funding and a suitable community body to take responsibility for long term maintenance.

11.5.10 Taking into account the above, it is recommended that the ADEPT guidelines form the basis for the composting standards for the eco-towns, as set out in Table 11.3 below:

Table 11.3: Recommended standards for home composting

ISSUE: HOME COMPOSTING		
Development type	Requirement	Additional requirements
For each house with garden space:	1 external compost bin and the provision of an appropriate external area 2m x 1m, readily accessible from the kitchen / utility area. 1 internal kitchen caddy (5l).	
Flats:	1 wormery bin (all units) For developments of >5 units, a communal compost area.	Would need to ensure that the maintenance of this area forms part of the grounds maintenance contract.
Per xx units	Community compost site – area of 20 square metres to be set aside for each site.	Maintenance would need to be the responsibility of identified community body with appropriate funding source.
Master composters	2 master composters to be available for each of the larger developments.	Would need to be funded via developer contribution.

Source: adapted from *Making Space for Waste: Designing Waste Management in New Developments*, ADEPT, June 2010

Commercial waste storage:

11.5.11 The ADEPT guidance note provides advice on waste storage requirements for commercial waste, noting that such waste is less easily categorised than household waste, with one business's waste potentially very different to the next, and with a variety of collection contractors. Therefore the bin provision and storage in

⁸ 'Wormeries' take cooked and uncooked vegetable and fruit scraps and small amounts of meat scraps. They produce fine compost and a liquid plant feed that can be used to feed pot plants and hanging baskets.

commercial, industrial and retail developments will need to reflect the collection frequency and specific requirements of the contractors concerned.

- 11.5.12 The following table provides an indication of ADEPT's recommended storage capacity for commercial developments, which is recommended to be adopted for the proposed eco-towns.

Table 11.4: Recommended standards for commercial waste storage

ISSUE: COMMERCIAL WASTE STORAGE	
Development type	Litres of waste storage for every 1,000m ² gross floorspace
Offices	2,600 l
Retail	5,000 l
Restaurants / fast food outlets	10,000 l
Hotels	7,500 l

Source: *Making Space for Waste: Designing Waste Management in New Developments*, ADEPT, June 2010

- 11.5.13 ADEPT recommends the following additional guidelines in respect of commercial waste storage:

- All developments must provide adequate storage space for composting, recycling and waste;
- All waste must be containerised and stored off the public highway;
- The provision of a compacter or baler (which can significantly reduce the storage space required and the frequency of collections) should be considered;
- Where compactors are used, separate provision should be made for the storage and collection of dry recyclables;
- Ideally waste storage should take place within the building itself, or, subject to adequate screening from public areas, within the external curtilage;
- Any such screening should consist of a fence of minimum 1.8m height, or that of the highest container as stored and seen from sensitive public vantage points;
- Loading of commercial containers should take place within the private yard of the premises, or from the highway subject to no requirement to reverse or cause of obstruction.

- 11.5.14 With specific reference to compactors, the ADEPT guidance recommends the following:

- **Offices** – compactors are recommended for all office developments larger than 2,500m². For offices larger than 10,000m² a rotary compactor is recommended and for those in excess of 15,000m² a portable skip compactor is recommended;
- **Light industrial** – a small sack compactor is recommended for units of 1,500m² or more, or for small units where the gross combined floorspace exceeds 1,500m².

- **Retail** – a small sack compactor is recommended for units of 1,500m² or more, a rotary compactor for those over 5,000m² and a portable skip compactor or larger static compactor for those over 10,000m².
- **Restaurants / fast-food outlets** – compactors are required for fast food outlets with an eat-in facility and recommended for other restaurants. A small sack compactor or wheeled container compactor is usually suitable, although a rotary compactor may be preferable for units with potentially high output;
- **Hotels** – a small bag compactor or wheeled container compactor is most suitable for hotels up to 250 bedrooms, with a rotary compactor, portable skip compactor or static compactor recommended for larger hotels.

Recycling provision in public areas:

- 11.5.15 With respect to communal 'Bring' facilities the ADEPT guidance (section 3.8) recommends that, in the case of major strategic developments, developers would normally be required to make provision for one Bring site for every 400 dwellings. A 75m² wide area should be made available to house the facility. Alternatively, consideration could be given to the provision of low visibility underground recycling banks.
- 11.5.16 The specific requirements associated with the provision of such a facility would be as follows:
- provide a suitable area of land (approximately 15m x 5m) within the development and build a recycling bring centre to a specification supplied by the authority;
 - purchase and supply suitable recycling containers to meet specifications supplied by the authority;
 - provide a suitable financial bond to cover defects occurring on the site for a period of five years from the date of completion (after which, the authority would adopt the site; and
 - the authority would undertake responsibilities for routine inspection and cleaning services on the completion of the facility.
- 11.5.17 For developments of less than 400 units, the ADEPT guidance indicates that a financial contribution could be secured on a per unit basis to fund:
- local recycling facilities to collect materials as required by the authority;
 - major recycling facilities e.g. household waste recycling centres; construction and/or maintenance;
 - enhancement of recycling containers and recycling points;
 - upgrading of existing recycling points;
 - Procurement of new/additional recycling containers.
- 11.5.18 Notwithstanding the above, as noted by the ADEPT guidance in Section 2.6, it could be argued that by following the relevant guidance relating to the provision of adequate waste storage space (internal and external) throughout the development, and through appropriate advance consultation with the local planning authority prior and waste collection authority, the provision of additional measures (such as Bring sites) to mitigate the waste aspects of the development may not be necessary. It is recommended that this issue would be best determined on a development basis

through discussions with SWP at the appropriate stage, and having specific regard to development mix and layout.

- 11.5.19 There are no standards within the ADEPT guidance with regard to the provision of **'Recycling on the Go'** facilities. However, it is recommended that these should be introduced alongside general public refuse (litter) bins within the eco-towns in order to minimise the generation of residual waste. This would therefore be incumbent upon the developers to provide.

Waste Collection Requirements

- 11.5.20 As a minimum, developments should be planned to adhere to the standards contained within BS 5906: 2005 – Waste Management in Buildings, Code of Practice, with regard to Refuse Collection Vehicle (RCV) access and turning requirements. This is referred to in Section 8 of the SWP guidance note.

- 11.5.21 Section 6 of the ADEPT guidance note provides detailed advice on waste collection. It includes a series of recommendations which, in the interests of brevity, are not repeated here, but address issues such as:

- Waste collection vehicle routing and round efficiency;
- Commercial waste collections – frequency and type;
- RCV type and size;
- Reversing and manoeuvring distances;
- Street widths, junction treatments and traffic calming;
- Vehicle tracking;
- Traffic flow considerations;
- Road and footway specification.

- 11.5.22 It is recommended that the principles contained within Section 6 of the ADEPT guidance note are adopted as guiding principles for the proposed eco-towns. The ADEPT guidance also stresses the importance of early engagement with the refuse collection authority with regard to the detailed design and layout of proposed developments at the masterplanning stage, and liaison with SWP on these matters represents a key recommendation of this report.

11.6 Planning Policy Mechanisms to secure recommended standards and guidelines

- 11.6.1 The preceding sections within this overall Section on Planning Mechanisms identify a series of recommendations and standards which have the potential to be incorporated within detailed design guidelines or specific guidance (e.g. Supplementary Planning Guidance) for each of the proposed developments.

- 11.6.2 The table below provides a comparative analysis of the planning status of each of the three development proposals, and the likely planning policy mechanisms by which the recommendations within this report may be implemented.

Table 11.5: Planning policy status for each development proposal

Proposal	Planning Policy Status	Implementation Mechanism	Other relevant information
Monkton Heathfield	Identified as an urban extension in the Taunton Deane Core Strategy 2011-2028; policy SS1. The Core Strategy is at an advanced stage of preparation, and is due to be Examined in February 2012.	Policy SS1 states that the preparation and adoption of SPD will be required to further guide development, incorporating a masterplan and design codes. It refers to further work being carried out for the Urban Extensions SPD by Urban Initiatives (2011) with the SPD due to be adopted in 2012.	Developer contributions will be required for community infrastructure in accordance with the Infrastructure Delivery Plan and will be further detailed in the CIL. These will include education, transport, health, community facilities and green infrastructure.
Yeovil Urban Extension	The broad location for the proposed development is identified within policy YV2 of SSDC's draft Core Strategy (Preferred Options, October 2010). A Publication Plan is still to be published for consultation, ahead of the Examination.	The draft Core Strategy does not refer to any specific implementation mechanism.	
Yeovil Urban Village	The proposed development is identified under the provisions of policy YV3 of SSDC's draft Core Strategy.	The subsequent Draft Summerhouse Village Masterplan (August 2011) prepared by Urbed supersedes the detail within this policy. This document includes outline design codes to be used in negotiations with potential development partners.	A report taken to Area South Committee on 4 January 2012 recommended that further studies be undertaken into issues relating to replacement car parking, flood risk assessment and financial viability. It is considered unlikely that the site will come forward until the latter part of the Core Strategy period, and the Masterplan should remain a working draft for the interim period.

- 11.6.3 The above assessment indicates that input to the design masterplan and design codes in each case is likely to be the most appropriate way forward for the relevant recommendations within this report. This would comprise the Monkton Heathfield Urban Extensions SPD and the Working Draft Summerhouse Village Masterplan, for the Taunton urban extension and Yeovil urban village respectively. While the latter document has been advanced to the stage where outline design codes have already been included, the extended timeline and likely future amendments to the document should afford the opportunity for input.
- 11.6.4 There is no specific indication at present regarding more detailed policy guidance for the Yeovil urban extension and this project is the least advanced of the three proposals and hence there is likely to be opportunity to input to the more detailed planning at a future stage once there is more certainty regarding the form of development.
- 11.6.5 In the meantime, it is recommended that the conclusions of this report be made available to the relevant parties involved in the masterplanning of each development in order to facilitate discussion and to enable more detailed input on waste planning matters to be made at the appropriate stage.
- 11.7 Other planning tools to secure compliance with recommended standards and guidelines**
- 11.7.1 The specific mechanisms that could be used to secure the implementation of the requirements set out within such planning guidance documents are examined in the section below.
- 11.7.2 It is recommended that developers are required to demonstrate compliance with the defined standards for external and internal storage space for refuse and recycling identified within Section 11.5 on submitted plans and within supporting planning documentation. This would enable planning conditions to be imposed requiring compliance with the approved plans and supporting waste documents in implementing the scheme. In the case of dedicated external waste storage space for communal and commercial premises (e.g. covered stores), the planning condition could also seek to ensure retention.
- 11.7.3 Potential also exists for securing the provision of relevant measures to facilitate re-use / recycling via s.106 agreement. This would be an appropriate mechanism for measures either requiring some form of financial contribution, some administrative undertaking, or direct provision of facilities in an off-site location.
- 11.7.4 The following measures have the potential to be secured via s.106 agreement:
- Provision of waste recycling infrastructure in an off-site location (e.g. 'Recycling on the Go' facilities) in connection with new retail / commercial development);
 - Provision of community composting facility (for residential development);
 - Contributions towards set-up costs for new kerbside collections eg batteries, WEEE;
 - Provision of funding to support recycling officers / master composters / door to door recycling canvassers;
 - Establishment and administration of new local exchange schemes.

11.7.5 In all such cases, the relevant tests for s.106 agreements, as set out in Circular 05/2005 would need to be met:

- Necessary to make the proposed development acceptable in planning terms;
- Directly related to the proposed development; and
- Fairly and reasonably related in scale and in kind to the proposed development.

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12 CONCLUSION

12.1.1 This document seeks to establish a ‘Waste to Resources’ Plan for the proposed urban extensions planned for Yeovil and Taunton in Somerset. Comprising a 3,179 unit mixed used scheme on the outskirts of Yeovil (location to be determined) and a 5,356 mixed use scheme at Monkton Heathfield, Taunton, these are both intended to represent exemplar developments, established on the basis of ‘eco-towns’ principles, surpassing current best environmental practice and being leaders in minimising and extracting value from waste. A smaller urban village in Yeovil (comprising 151 units and associated mixed use development) is to be established to similar principles.

12.1.2 In order to provide the appropriate background context for developing the Waste to Resources Plan, a comprehensive review of waste practice and performance both within Somerset and further afield has been undertaken, in order to establish the baseline and identify and benchmark current trends and performance. A set of targets has then been proposed for the eco-towns, taking into account good practice and recommended eco-town performance targets, set against the context of what can be realistically achieved given existing performance levels (it should be noted in particular that SWP’s current recycling performance is already good due to the recent introduction of the ‘Sort It Plus’ scheme across the SWP area). Using available information about the eco-towns, a series of estimations of waste arisings has been made in each case, using the targets recommended by the report.

12.1.3 The proposed targets for the eco-towns are set out below.

Table 12.1 Summary of Recommended Waste Targets

Waste stream	Best practice target	Urban extension target (yr 1)
Household waste		
Residual waste per person per year	150kg (eco town) 225kg (national 2020)	150kg (year 1) 130kg thereafter
Kerbside capture of seven key recyclables (paper & card, wood, garden & kitchen waste, cans, glass, plastic, textiles).		100% (aspirational target)
Recycling and recovery	62%	70% re-use / recycling 100% including recovery
C & I waste		
Re-use, recycling and recovery	68% (England average)	70% re-use / recycling 100% including recovery
Diversion from landfill	100%	100%
C & D waste		
Recycling and recovery	80%(recycling) 100% (with recovery)	90%(recycling) 100% (with recovery)
Diversion from landfill	100%	100%

- 12.1.4 In order to help achieve the proposed eco-town targets for waste, a number of different recommendations have been made within the report. Some of these represent recommended standards to which future developers should adhere, and some comprise practical measures which should be given further consideration in the detailed planning stage for each eco-town. Some (such as the more innovative solutions outlined in Section 10) may require further investigation. A summary of the recommended measures, their likely means of implementation and the SWP's initial response with regard to each measure, is given in Table 12.1.

Table 12.1: Summary of recommendations and implementation measures

Recommendation	Suggested implementation measure / responsible body	Associated planning mechanisms to secure implementation / compliance	SWP Initial Response	Notes
All Somerset authorities to adopt SWP's space standards (internal and external) for waste storage outlined within its ' Design Requirements for Residential Properties – Recycling & Waste Management ' (June 2010 and as updated in the future) document in respect of residential developments.	Adoption as Supplementary Planning Document by district authorities.	Planning condition	Strongly endorse	This is recommended as an 'across the board' measure in order to assist SWP in driving up standards of recycling performance via facilitating the requirements of 'Sort It Plus'.
Proposed eco-town developments to adopt the SWP standards referred to above for residential development, and the 'ADEPT' standards for all other development types.	To be implemented by developer(s). Via design guidelines / design codes / SPD as applicable to each development.	Planning condition Section 106 agreement	TBC	

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Early consultation with SWP regarding waste design requirements as part of ongoing dialogue in respect of proposed eco-town developments.	Good practice measure; appropriate reference to be included in design guidelines / design codes / SPD as applicable to each development. Applicants to be signposted to SWP during pre-app engagement.	None	Very strongly support	
Home composting: houses - provision of internal organics storage caddy and external compost bin along with suitable external storage area.	To be implemented by the developer(s). Standards to be set out within design guidelines / design codes / SPD as applicable to each development.	Planning condition	Strongly support compost bins for gardens	
Home composting: flats – provision of wormery composting bin for each unit along with communal composting area for developments of 5 units or more.	To be implemented by the developer(s). Standards to be set out within design guidelines / design codes / SPD as applicable to each development.	Planning condition	Do not support communal composting for flats.	SWP are planning to provide communal food waste collections, and would support a requirement that green grounds waste be composted by a responsible contractor.
Home composting: implementation of master composters' scheme – 2 champions per development (Monkton Heathfield and Yeovil Urban Extension).	To be implemented / overseen by SWP? Standards to be set out within design guidelines / design codes / SPD as applicable to each development.	Section 106	Support in principle but have higher priorities for use of section 106 funds.	Excluding Yeovil urban village where the quantum of development is considered to be insufficient. SWP already operates a scheme of compost champions.

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<p>Promotion of exchange mechanism for unwanted items at the outset of the development.</p>	<p>To be implemented / overseen by SWP? Publicise via i) community information releases / leaflet drop; ii) local ecotown website; iii) posters in communal areas eg libraries / health centre; iv) community workshop / events.</p>	<p>None if make use of existing mechanisms e.g. Freecycle / Freegle. Potential use of Section 106 funding if bespoke system is set up.</p>	<p>SWP recommend that this would work best as part of Freecycle or Freegle groups; smaller local alternatives very rarely prove sustainable and so funding this would nearly inevitably represent poor use of funds.</p>	
<p>Initiate a community waste reduction campaign (designing out waste) with particular focus on household paper use. Also publicise potential for paper to be composted at home.</p>	<p>To be implemented / overseen by SWP? Publicise via i) community information releases / leaflet drop; ii) local ecotown website; iii) posters in communal areas eg libraries / health centre; iv) community workshop / events.</p>	<p>Section 106? None – ongoing environmental awareness</p>	<p>Would support workshop if funding can be provided.</p>	
<p>Implement small WEEE collection for householders as part of kerbside recycling scheme</p>	<p>SWP collections.</p>	<p>Supported by an ecotown management fund via Section 106 funding.</p>	<p>Consideration is already being given by SWP to the addition of small WEEE to kerbside collections with compliance scheme support.</p>	<p>Depending on timescales, small WEEE kerbside collection could be trialled within the eco-towns as a pilot project with the potential to be rolled out to the wider SWP area.</p>
<p>Give consideration to introducing free large WEEE / bulky waste collections (on the basis of maximum per household per year before payment).</p>	<p>SWP collections.</p>	<p>Supported by an ecotown management fund via Section 106 funding.</p>	<p>Free WEEE and bulky – not supported, as it is the policy of the Somerset Councils are to charge for these collections,</p>	

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Consider the use of household battery bags that form part of household collections.	SWP collections.	Supported by an ecotown management fund via Section 106 funding.	Battery bags are already under consideration for addition to kerbside collections with compliance scheme support.	Depending on timescales, battery kerbside collection could be trialled within the eco-towns as a pilot project with the potential to be rolled out to the wider SWP area.
Consider the introduction of separate wood collections via wood bags which could be collected alongside the contents of the garden waste bin.	SWP collections.	Supported by an ecotown management fund via Section 106 funding.	Not supported by SWP.	Currently wood is collected with garden waste (branches up to 100mm).
Consider the introduction of collection / recycling of street sweepings , such as grit, leaves, soil, sand and gravel, with arisings sent for processing to create re-useable product e.g. topsoil.	SWP collections.		TBC	
Introduction of ' Recycling on the Go ' facilities in public places for plastic bottles, cans etc. in tandem with public litter bins.	To be implemented by developer(s). Standards to be set out within design guidelines / design codes / SPD as applicable to each development.	Planning condition Section 106 agreement	Support.	

**SECTION 12
CONCLUSION**



<p>Integration of Commercial and Industrial with household waste collection.</p>	<p>Would require liaison and agreement between SWP and commercial operators, along with the introduction of pragmatic means of identifying different collections.</p>	<p>None.</p>	<p>This proposal is supported by SWP.</p>	
<p>Provision of recycling collections (paper, card, glass, cans) and waste education measures to new schools.</p>	<p>To be implemented by SWP.</p>	<p>Supported by an ecotown management fund via Section 106 funding.</p>	<p>Supported by SWP, within confines of funding</p>	<p>Recycling collections are currently provided to all schools in Somerset, and SWP has long supported a waste education programme in local schools (although funding has recently been reduced).</p>
<p>Provision of recycling collections and waste education measures to other public buildings e.g. hospitals, health centres, libraries.</p>	<p>To be implemented by SWP.</p>	<p>Supported by an ecotown management fund via Section 106 funding.</p>	<p>TBC.</p>	
<p>Introduction of a community website for the eco-town to disseminate bespoke information about the eco-town, including waste collections services, what can be recycled, residual waste targets and other relevant information.</p>	<p>To be implemented / overseen by SWP.</p>	<p>Supported by an ecotown management fund via Section 106 funding.</p>	<p>TBC.</p>	<p>Website could also provide a forum for feedback and discussion between new residents, and could also support some of recommendations within this report e.g. local exchange systems.</p>

**SECTION 12
CONCLUSION**



Use of community roadshows to publicise available recycling measures at the outset of the development.	To be implemented by SWP.	Supported by an ecotown management fund via Section 106 funding.	SWP have indicated that they would not support this measure on the grounds that they have limited impact except when significant new kerbside services are being introduced.	Possibility to discuss further in the context of the proposed new settlements?
Competitions and incentive schemes to encourage participation in specific recycling schemes.	To be implemented by SWP.	Supported by an ecotown management fund via Section 106 funding.	SWP have indicated that they would consider these measures in tandem.	
Waste facility open days to facilitate public understanding of how waste is dealt with.	To be implemented by SWP.	Supported by an ecotown management fund via Section 106 funding.	Supported by SWP.	
Leaflets to disseminate information about recycling and waste minimisation.	To be implemented by SWP.	Supported by an ecotown management fund via Section 106 funding.	SWP already promote leafleting and this initiative is continuing to be developed.	
Underground pneumatic waste collection system , which would form part of the overall infrastructure for the proposed development.	Would be implemented by developer(s), via development masterplan, in consultation with SWP / LPA (subject to further investigations on feasibility).	Planning condition / section 106 agreement	Not considered to have good potential or provide models of best practice for household waste in Somerset.	Would not be considered suitable for Yeovil urban village, but has potential for further consideration for the two larger urban extensions.

**SECTION 12
CONCLUSION**



<p>Deep collection system (MOLOK) – probably most suitable in communal / public locations.</p>	<p>To be implemented by developer(s). Via design guidelines / design codes / SPD as applicable to each development.</p>	<p>Planning condition / section 106 agreement</p>	<p>Not considered to have good potential or provide models of best practice for household waste in Somerset.</p>	
<p>Chute collection system - suitable for commercial and residential blocks of more than four storeys.</p>	<p>To be implemented by developer(s). Via design guidelines / design codes / SPD as applicable to each development.</p>	<p>Planning condition / section 106 agreement</p>	<p>Not considered to have good potential or provide models of best practice for household waste in Somerset.</p>	
<p>Concierge collection system - suitable for communal residential and commercial premises.</p>	<p>To be implemented by developer(s). Via design guidelines / design codes / SPD as applicable to each development.</p>	<p>Planning condition / section 106 agreement</p>	<p>Not considered to have good potential or provide models of best practice for household waste in Somerset.</p>	
<p>Superlizzy compaction system – most suited to commercial enterprises such as fast food outlets, cafeterias, leisure facilities.</p>	<p>Good practice measure – for implementation via individual developers / operators.</p>	<p>N/A</p>	<p>Not considered to have good potential or provide models of best practice for household waste in Somerset.</p>	
<p>Minima compaction system – most suited to commercial sector, and represents an effective waste collection solution for offices and schools.</p>	<p>Good practice measure – for implementation via individual developers / operators.</p>	<p>N/A</p>	<p>Not considered to have good potential or provide models of best practice for household waste in Somerset.</p>	

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CONCLUSION**



<p>Rocket composter – most suited to civic and commercial enterprises.</p>	<p>Good practice measure – for implementation via individual developers / operators.</p>	<p>N/A</p>	<p>Not considered to have good potential or provide models of best practice for household waste in Somerset.</p>	
<p>Glass crusher – of primary use for commercial enterprises.</p>	<p>Good practice measure – for implementation via individual developers / operators.</p>	<p>N/A</p>	<p>Not considered to have good potential or provide models of best practice for household waste in Somerset.</p>	