Waste Prevention Strategy 2010-2020

Working towards a more sustainable Oxfordshire

Oxfordshire Waste Partnership

Contents

1. Summary

What is OWP?
Oxfordshire Waste Partnership (OWP) comprises:

- Cherwell District Council
- Oxford City Council
- Oxfordshire County Council
- South Oxfordshire District Council
- Vale of White Horse District Council
- West Oxfordshire District Council.

OWP's Waste Prevention Work
OWP works to prevent waste by:

- Helping and encouraging people to reduce the amount of waste they generate
- promoting reuse of items instead of throwing them away; and
- increasing home composting.

This strategy sets out the partnership's vision for waste prevention over the next 10 years.

How does Oxfordshire perform?
Oxfordshire has a good recycling performance - recycling and composting 48% of the 280,000 tonnes of waste produced in the county in 2009. This is a substantial increase from a recycling rate of 11% a decade ago.

However, waste levels continue to rise due to increases in population and changes to householders purchasing habits. In 2008 Oxfordshire councils dealt with an additional 26,000 tonnes of waste compared to 10 years ago.

Minimising the amount of waste to be collected, transported and processed has substantial benefits environmentally (particularly in terms of carbon dioxide savings) and is more economical, both for councils and taxpayers.

OWP achievements
It is believed that OWP's current waste prevention activity reduced carbon dioxide (CO_2) output in the county by around 10,770 tonnes in 2009-10 - equivalent to removing over 7,600 cars from the road.

Without this activity, it is estimated that an additional 8,850 tonnes of waste, with disposal costs in the region of £386,000, would have been dealt with in 2009-10.

OWP aims
This strategy aims to build on the existing waste prevention projects within the county by prioritising resources for maximum effect and setting ways to measure the impacts of this work.

Projects and campaigns identified in this strategy include:

- home composting
- food waste reduction
- increasing reuse of "bulky waste" materials (such as furniture and appliances) before recycling.

Together these campaigns could reduce the amount of waste collected in Oxfordshire by some 130,000 tonnes between 2010 and 2020, potentially saving around £7.4 million in disposal costs, along with a significant reduction in collection costs.

2. Background

2.1 Scope of Strategy

Oxfordshire Waste Partnership's (OWP's) vision of the future is **a society where everyone tries to prevent waste and sees waste materials as a potential resource.**

Waste prevention means taking action to avoid waste being generated in the first place. For local councils it means promoting more environmentally sustainable practices by householders and local businesses, so that less waste needs to be dealt with by council services. For businesses, waste prevention might mean improvements to manufacturing processes to reduce wastage of materials. Waste prevention is good for the environment and can save councils money.

This Waste Prevention Strategy (the Strategy) forms part of the wider Joint Municipal Waste Management Strategy (JMWMS) for Oxfordshire, which was adopted in 2006. The Waste Prevention Strategy replaces the original Waste Reduction and Reuse Plan: Annex B 'No time to waste' (contained within the 2006 JMWMS) and will run until 2020.

The Strategy embraces the JMWMS vision, to **'work in partnership to reduce waste and to maximise reuse, recycling and composting'**.

A wider review of the current JMWMS will be completed in 2011/12. The Strategy also contributes to the Oxfordshire 2030 Sustainable Community Strategy pledge to "Reduce waste and increase reuse and recycling by households and businesses".

Waste prevention is difficult to measure by traditional means, as by preventing waste in the first place, it never enters local authority systems and is therefore not measured. However, as local government increasingly seeks to improve value for money and justify expenditure, it is now more important than ever to try to measure the impact of waste prevention activity and demonstrate a "return on investment" for this work. It is for these reasons that we have decided to replace the existing Annex B document with a new strategy that reflects current and emerging best practice in waste prevention and is underpinned by a strong business case.

Waste prevention is an effective means of reducing CO_2 emissions, which lead to global warming. This strategy also attempts, for the first time, to demonstrate some of the CO_2 benefits of waste prevention activities.

2. Background

2.2 Oxfordshire Waste Partnership

OWP is made up of the county and district councils of Oxfordshire: Cherwell District Council; Oxford City Council; Oxfordshire County Council; South Oxfordshire District Council; Vale of White Horse District Council and West Oxfordshire District Council.

OWP became a statutory Joint Committee in April 2007, with powers to develop and implement a sustainable waste management strategy for Oxfordshire. OWP is supported by an Officer group structure as set out in Figure 1. Oxfordshire Councils work together through OWP to manage and improve waste management within the county by implementing their 2006 Joint Waste Management Strategy "No Time to Waste".

Oxfordshire real nappy agents

Figure 1: Structure of Oxfordshire Waste Partnership

2. Background

2.21 Waste Reduction Projects Group

The lead on waste prevention activity is taken by officers of the Waste Reduction Projects Group (WRPG). This group comprises officers from each partner council and OWP staff.

A number of key service delivery partners are also represented at Waste Reduction Project Group:

Community Action Groups (CAGs): The CAG project is funded by Oxfordshire County Council to promote waste reduction in the community. CAGs are a network of local voluntary groups supported by a full time and a part time project officer. The CAG project officers provide support, training and advice for the groups, helping them to apply for grant funding, plan events and projects and link with other organisations.

In 2009, there were twenty-five CAGs in Oxfordshire, organising events and initiatives to raise awareness and take action on waste reduction and climate change issues and encouraging people to live a more sustainable and less resource dependent life in their local community. Some groups have gained national recognition, such as Dorchester Carbon Project who became one of the first 'Zero Waste Places' in England.

The Wild Waste Show (WWS) is an educational roadshow that visits schools and community groups throughout Oxfordshire raising awareness of the problems caused by waste, our throw-away society and how we can act to make a difference.

School children enjoying 'rubbish' lessons

Funded by Oxfordshire Waste Partnership and consisting of the Wild Waste Bus and Outreach Programme, the project visited 150 schools in 2008, reaching 21,000 pupils around the County. The Wild Waste Show is managed by the Northmoor Trust, an environmental charity based at Little Wittenham, Oxfordshire.

2. Background

2.3 Waste Prevention Definition

This strategy focuses on waste prevention as a separate issue from recycling and recovery (see circled area in Figure 2). Waste prevention covers the stages before a material becomes "waste" and enters council collection systems and includes:

- **Avoidance:** not producing the waste in the first place e.g. buying only the food you need, buying unpackaged products.
- **Reduction:** reducing the amount of waste produced, e.g. lighter/ thinner retail packaging, composting left-over food scraps.
- **Reuse:** reusing a product without undertaking a reprocessing step which would occur in recycling e.g. refilling a bottle, donating and purchasing furniture from reuse organisations.

The strategy prioritises its actions according to the largest waste streams that we manage (by referring to research on the composition of Oxfordshire's waste). It will focus on areas that give most savings in waste and carbon dioxide emissions. This strategy does not include work to optimise recycling and refuse collections, although it is acknowledged that collection systems can influence the total amount of waste generated. Waste collection and treatment systems will be included within the JMWMS review to be undertaken in 2011/12.

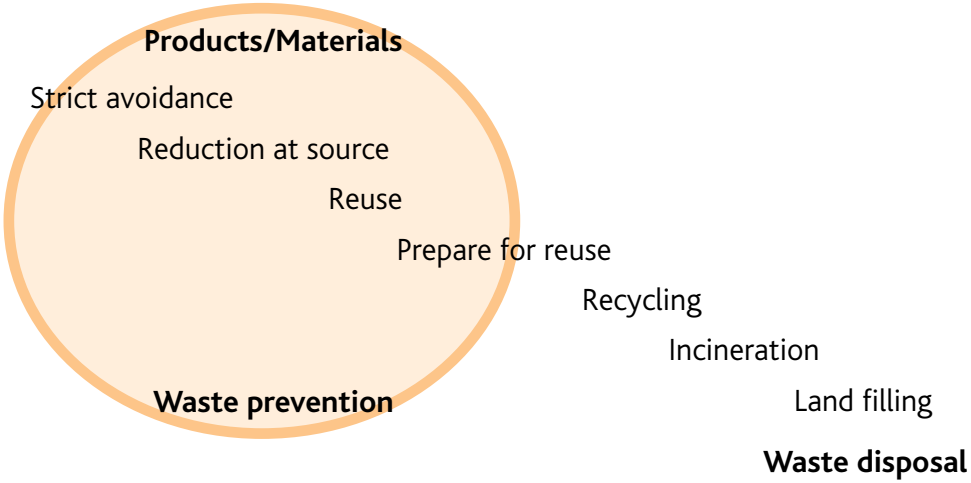


Figure 2: Scope of Waste Prevention within the Waste Hierarchy

2.4 Current Waste Prevention Activity

Oxfordshire has a strong track record in undertaking waste prevention activity. Current campaigns include:

- Promoting and selling home composting bins
- Master composters (volunteers who champion home composting in their local communities)
- Promoting real nappies
- Encouraging food waste avoidance (through the Love Food Hate Waste Campaign)
- Plastic bag free towns (helping market towns reduce plastic bag usage).

Community Action Groups work to encourage grass roots action on climate change and waste reduction, and are recognised as a best practice form of community engagement by the Waste and Resources Action Programme (WRAP).

Oxfordshire was the first county in England to employ a Commercial Waste Reduction Officer. This post has undertaken a wide range of projects to improve resource efficiency in Oxfordshire, most recently working to trial business recycling points and develop a web-based resource exchange for Oxfordshire www.retrader.org.uk.

This strategy aims to build on this existing track record, and continue to develop further waste prevention activity in Oxfordshire.

Cooking demonstrations to highlight 'Love Food Hate Waste'

3. Drivers for Waste Prevention in Oxfordshire

OWP is committed to managing waste in accordance with the waste management hierarchy as shown in figure 2. There are many reasons why waste prevention is a priority for Oxfordshire Waste Partnership and these are set out in sections 3.1- 3.5.

Community members of Blackbird Leys, Oxford

3.1 Costs

Reducing the amount of waste managed by OWP councils makes good economic sense. Close to £35 million per year is spent by the county council and district councils on dealing with waste through collection, haulage, landfill (including landfill tax) and other gate fees to process waste. Landfill tax alone cost Oxfordshire £4.9 million in 2008/09.

Oxfordshire, along with all other waste disposal authority areas in England, is also subject to the Landfill Allowance Trading Scheme. This sets challenging targets limiting the amount of waste that can be sent to landfill. Failing to achieve these targets could result in significant fines (up to £150 a tonne) for landfill above these allowable amounts. Waste prevention can contribute to the achievement of these targets alongside recycling and composting, by decreasing the overall amount of waste managed.

Unnecessary waste is also costly to many others in Oxfordshire, ranging from businesses, to schools and householders. For example, WRAP states that 'wasting food costs the average family with children £680 a year'[1], and a DEFRA (Department for the Environment, Food and Rural Affairs) sponsored study estimated that businesses could save an estimated £6.4 billion a year through low cost or no cost resource efficiency measures, mainly on energy and waste reduction[2].

[1] 'The Food we Waste', Lorrayne Ventour for WRAP, version 2 issued July 2008.

[2] 'Quantification of the Business Benefits of Resource Efficiency', published by DEFRA in October 2007

3. Drivers for Waste Prevention in Oxfordshire

3.2 Environmental Considerations

Avoiding sending waste to landfill (through both waste prevention and recycling activity) helps to reduce greenhouse gas emissions that contribute to climate change. Preventing waste being produced in the first instance has an additional environmental advantage in minimising not only the loss of natural resources within the product itself, but also the energy and natural resources used in the manufacturing of the product.

It is estimated that for every tonne of waste produced in a home, five tonnes were generated in manufacturing those items and twenty tonnes were generated in extracting the material to manufacture the items.

Therefore, by preventing one tonne of waste at home an additional saving of twenty-five tonnes is made at the manufacturing and extraction stages.

Preventing waste (for example by smart shopping or home composting) also minimises the number of transport journeys required for collection and haulage of waste materials by councils for recycling or disposal. By cutting out manufacture, extraction, usage and disposal, waste prevention achieves significant CO_2 savings.

It has not been possible to calculate CO_2 equivalents for all activites. However, for home composting, food waste and junk mail reduction an additional CO_2 saving of 14,350 tonnes will be achieved by 2020. This is equivalent to taking 590 cars off the road. When added to the existing 2009/10 baseline the total CO_2 savings are 360, 850 tonnes, equivalent to over 7,600 cars taken off the road.

3. Drivers for Waste Prevention in Oxfordshire

3.3 Legislative Drivers

The National Waste Strategy for England 2007 put increased emphasis on waste reduction and reuse, and identified waste prevention measures as a method of reducing global greenhouse gas emissions. In the same year, new performance measures for Local Authorities: "National Indicators" were announced. The Key National Indicators related to waste prevention are listed below:

- National Indicator (NI) 191 – Measures "Residual waste per household." This is the waste that is not recycled, composted, reused or otherwise prevented.
- NI 192 – Measures the "Percentage of household waste sent for reuse, recycling and composting"
- NI 193 – Measures the "Percentage of municipal waste landfilled".

National government announced in November 2010 that local authorities are no longer required to report against the National Indicator set or against Local Area Agreement (LAA) targets. New information reporting requirements are expected by April 2011. OWP may also choose to retain the existing indicators where these are considered useful.

Oxfordshire's LAA waste targets were to:

- Reduce the amount of residual waste collected to 715 kg per household or less by 2010/11.
- Achieve a 45% recycling & composting rate by March 2011.

Oxfordshire's key JMWMS are to:

- Reduce the growth of municipal waste to 0% per person per annum by 2012.
- Reduce the amount of waste sent to landfill to no more than:
  - 81,000 tonnes by 2012/13
  - 56,700 tonnes by 2019/20 (EU Landfill Directive target).
- To recycle or compost at least 55% of household waste by March 2020.

Other relevant legislation includes:

The Waste Minimisation Act 1998 - This enables local authorities throughout the UK to take steps to minimise the generation of household, commercial or industrial waste. The Act gives recognition to the fact that local authorities also have responsibilities to promote waste minimisation (and therefore waste prevention).

Waste Framework Directive 2006 - This emphasises the waste hierarchy. It recognises that preventing waste will normally be the best environmental option for waste management and so therefore should be considered before reducing, reuse, recycling and composting, energy recovery and finally disposal to landfill.

Landfill Directive 1999 - The Landfill Directive requires that the amount of biodegradable municipal waste sent to landfill is reduced. These reductions have been implemented through the Landfill Allowance Trading Scheme (LATS) discussed in section 3.1.

3. Drivers for Waste Prevention in Oxfordshire

3.4 Community Benefits

Oxfordshire has a large, established network of volunteers and community groups working on waste prevention issues including the Community Action Group project and Master Composter Scheme.

This type of activity can have a number of benefits beyond waste prevention such as:

- bringing local people together for a common cause;
- improving community cohesion;
- offering training opportunities;
- providing a catalyst for other forms of environmental activity.

Schemes that divert items for reuse can have wider social benefits in providing affordable items for people on low incomes and providing employment opportunities for disadvantaged people. There are a number of local charities that provide training opportunities through the collection, refurbishment and sale of furniture, bicycles and other items.

A Master Composter volunteer at work

3. Drivers for Waste Prevention in Oxfordshire

3.5 Supporting Commercial Waste Prevention

Supporting businesses to reduce the amount of waste they send to landfill has both economic and environmental benefits for that business and Oxfordshire as a whole. Businesses that reduce waste spend less on disposal, providing them with more money to use creating wealth.

Overall, waste produced by businesses is many times greater in quantity than waste produced by households, so reducing this is imperative if our use of natural resources is to be minimised.

Martin Parham of Herbiseed finds a new home for old filing cabinets through www.retrader.org.uk

4. Waste Prevention Strategy Principles

The ten key principles below will guide waste prevention within Oxfordshire Waste Partnership:

1. We will prioritise waste prevention efforts on areas where local councils can have the greatest impact in reducing waste and carbon dioxide emissions.
2. We will seek to demonstrate the waste hierarchy to residents, giving clear and consistent messages about the importance of waste prevention and reuse.
3. We will work with and support external partners, both local and national, on waste prevention policies and initiatives.
4. We will seek to maximise the social benefit of waste prevention by working with the community and voluntary sector where possible and appropriate.
5. We will seek to attract external funding for waste prevention initiatives.
6. We will develop a network of local supporters for waste prevention campaigns (volunteers, community groups, other organisations).
7. We will support businesses to reduce waste.
8. We will spread good news and share best practice on waste prevention by sharing effective work undertaken by OWP and others.
9. We will target our waste prevention campaigns to relevant audiences.
10. We will lead by example by seeking to reduce waste from our own activities and those of our partners and contractors.

Principle 1 has been used alongside the composition of Oxfordshire's household waste (see Figure 3 below) to prioritise the eight areas of focus for waste prevention campaigns and projects identified in Chapter 5. Simply put, we will focus our efforts on the largest waste streams and those with the greatest carbon dioxide impact.

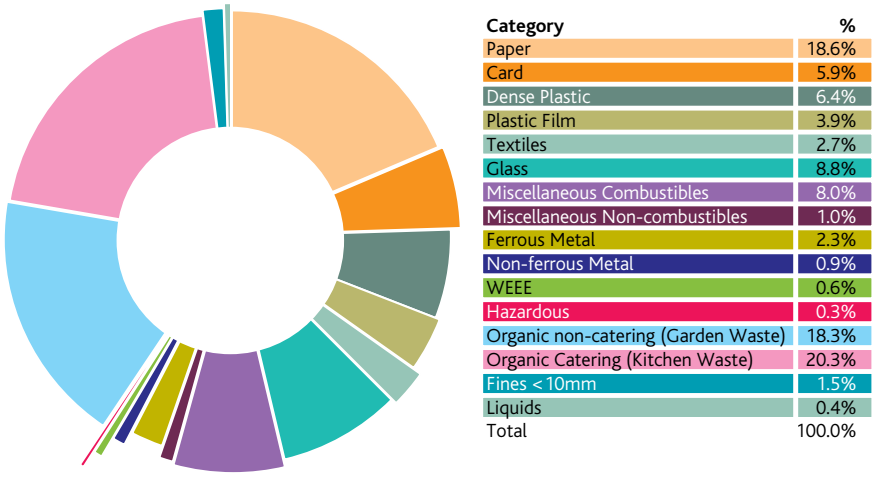


Figure 3 - Overall Composition of the County's Kerbside Waste
Source: SKM Enviros - Oxfordshire Waste Partnership Two Season Waste Composition Report 2010

5. OWP Priority Waste Prevention Activities

The table below sets out eight priority areas for waste prevention activity from 2010 - 2020. The first six areas are household waste streams and are shown in order of priority for OWP resourcing. The final two areas cover commercial waste and run alongside our work on household waste.

Chapter 6 sets out more detail on the main aims and potential waste prevention outcomes for each of the eight priority areas.

Priority Waste Stream	Joint Policy
Household Waste	
1.Garden waste and compostable food waste	We will promote home composting to reduce organic waste collected and processed by councils.
2.Avoidable food waste	We will deliver a campaign to reduce avoidable food waste.
3.Bulky waste and smaller reusable items	We will develop reuse of bulky items at our Household Waste Recycling Centres (HWRCs) and from bulky collections where possible. We will raise awareness and understanding of the importance of materials reuse.
4.Nappy waste	We will promote the benefits of using real nappies and give practical advice on their usage.
5.Packaging waste and carrier bags	We will promote the reduction of packaging waste by providing simple, practical "smart shopping" advice to residents. We will promote efforts by retailers and central government to reduce packaging waste at source and spread good news on their achievements.
6.Junk mail	We will provide information and advice to help residents and local businesses reduce junk mail.
Commercial Waste	
7. Trade waste	We will introduce measures to remove trade waste from the household stream and provide viable alternatives for trade waste disposal. We will support businesses in reducing their waste and recognise their achievements.
8. Waste from council activities	We will seek to minimise waste generated from our own activities.

6. Waste Prevention Activity Action Plans

The tables below set out the main aims for each of the eight priority areas identified in Chapter 5.

Targets, disposal cost savings and predictions of potential for waste prevented have been included where appropriate (Further details are included in Appendix 2).

In practice, some activities have impacts that, although potentially substantial, are difficult to measure. Where this is the case the potential benefits of this activity have been listed, but not quantified.

6.1: Garden and Home Compostable Food Waste

Priority Material	**Garden Waste and Home Compostable Food Waste**
Joint Policy	**We will promote home composting to reduce organic waste collected and processed by councils.**
2009 -10 Baseline	Around 37,000 households currently compost at home in Oxfordshire. This diverts around 5,585 tonnes of waste per year that would otherwise have been placed in landfill and garden waste collections. This saves an estimated £212,000 per year in waste disposal costs and a CO_2 saving on waste disposal of 285 tonnes.
Aims 2010 - 2020	1. Provide and market a scheme whereby households can purchase home compost bins. 2. Support existing composters to continue to compost as much as possible at home. 3. Develop and support a network of Master Composters. 4. Investigate and disseminate any best practice in larger scale composting and innovative forms of garden waste prevention such as grass cycling and smart gardening.
Target and Waste Prevention Potential 2010- 2020	**Aim to sell a minimum of 4000 compost bins in 2010/11 and at least 2000 per year thereafter.** • **It is estimated that 150 kilograms of waste per household per year (kg/hh/yr) can be diverted by home composting.** • **Potential waste diversion from all home composting in Oxfordshire from 2010 – 2020 of 64,234 tonnes.** • **Estimated avoided costs of £3.3 million in waste disposal 2010-2020.**

6. Waste Prevention Activity Action Plans continued

6.1: Garden and Home Compostable Food Waste continued

Priority Material	**Garden Waste and Home Compostable Food Waste**
Joint Policy	**We will promote home composting to reduce organic waste collected and processed by councils.**
Existing Activities	Since 2002, Oxfordshire County Council has promoted home compost bins to residents at competitive prices through regular negotiation with suppliers. A Master Composter (MC) scheme was set up in 2008 to further support the uptake of home composting. Some MCs work direct with local schools as well as with the Wild Waste Show project. A demonstration food waste tumbler is set up at the Restore social project for access by small businesses and community groups.
Additional Community Benefits	• Training and development for Oxfordshire residents as Master Composters encourages volunteering, environmental awareness and community cohesion. • Master Composters may support and promote other environmental initiatives. • May be a trigger for householders to undertake further environmental activity.
Measures	• Number of compost bins sold. • Number of master composters trained and hours completed. • Case study results of larger scale composting or smart gardening projects.

6. Waste Prevention Activity Action Plans continued

6.2 Avoidable Food Waste

Priority Area	Organics – Avoidable Food Waste
Joint Policy	**We will deliver a campaign to reduce avoidable food waste.**
2009 -10 Baseline	12% of households in Oxfordshire are currently "Committed Food Waste Reducers" (Feb 2009 figure). These households currently prevent 2,500 tonnes of waste per year that would otherwise have been placed in landfill and food waste recycling collections. This saves an estimated £138,000 in disposal costs and a CO_2 saving on waste disposal of 10,770 tonnes.
Aims 2010 - 2020	**1. Raise awareness of the amount of edible food that is thrown away.** **2. Offer practical advice on how to reduce food waste and save money.** **3. Develop and support a network of Love Food Hate Waste champions.** **4. Ensure food waste prevention message complements food waste recycling collection and home composting messages.**
Target and Waste Prevention Potential 2010- 2020	**Increase the number of "Committed Food Waste Reducers" to 25% by 2020.** • **It is estimated that 78kg/hh/yr can be avoided by a "Committed Food Waste Reducer"[1] .** • **Potential waste diversion from all households actively minimising food waste in Oxfordshire from 2010 – 2020 of 44,488 tonnes.** • **Estimated avoided costs of £2.6 million in waste disposal 2010-2020.** • **Estimated avoided CO_2 of 178,790 tonnes between 2010 and 2020.**
Existing Activities	OWP started promoting the national "Love Food, Hate Waste" campaign in February 2009. A leftovers recipe competition led to the production of a recipe book which is given away to people who make a simple pledge to Love Food Hate Waste. An advertising campaign highlighting key messages and a series of roadshows including cooking demonstrations have also been undertaken.
Additional Community Benefits	• May be trigger for householders to undertake further environmental activity. • Cost saving of up to £680 per year to families by wasting less food.
Measures	• Number of "Committed Food Waste Reducers". • Number of Love Food Hate Waste pledges collected. • Increase in stated awareness of campaign.

[1] A Committed Food Waste Reducer is a person that actively seeks to reduce the amount of edible food that they waste. This can be measured by a person's answers to a series of survey questions produced by WRAP.

6. Waste Prevention Activity Action Plans continued

6.3 Bulky Waste and Smaller Reusable Items

Priority Area	Bulky Waste and Smaller Reusable Items
Joint Policy	• We will develop reuse of bulky items at our HWRCs and from bulky collections where possible. • We will raise awareness and understanding of the importance of waste reuse.
2009 -10 Baseline	There is limited baseline information for reuse at HWRC sites and through external organisations.
Aims 2010 - 2020	**1. Develop a reuse operation as part of a new HWRC.** **2. Develop opportunities for reuse in conjunction with contractors at existing HWRCs.** **3. Train council call centre and HWRC site staff to offer reuse options to residents as a preference to disposal options.** **4. Divert waste to reuse from council kerbside bulky collections.** **5. Support reuse activities undertaken by organisations such as CAGs, e.g. swapshops and PAT (Portable Appliance Testing) for electrical goods.** **6. Promote buying "reused" items, repair and hire.**
Target and Waste Prevention Potential 2010- 2020	• **Reusing items from bulky waste collections in all district areas has the potential to divert 1008 tonnes from landfill between 2010 and 2020.** • **Reusing items at Household Waste Recycling Centres has the potential to divert 6480 tonnes between 2010 - 2020.** • **This equates to avoided disposal costs in the region of £716,000.**

6. Waste Prevention Activity Action Plans continued

6.3 Bulky Waste and Smaller Reusable Items continued

Priority Area	Bulky Waste and Smaller Reusable Items
Joint Policy	• We will develop reuse of bulky items at our HWRCs and from bulky collections where possible. • We will raise awareness and understanding of the importance of waste reuse.
Existing Activities	Small scale reuse occurs at some HWRCs, but has significant potential for development. There are a number of large scale furniture reuse organisations and a Scrapstore working in the county. OWP has recently produced a reuse directory to highlight opportunities for reuse within Oxfordshire. CAGs run regular swapshops at which a range of items are offered for reuse. A "Reuse Guide" is produced that offers practical advice on reuse and gives contacts for local and national reuse organisations.
Additional Community Benefits	• Provides a range of items at low cost to Oxfordshire residents. • Provides potential for partnership with charities / social organisations.
Measures	• Tonnages or numbers of items to reuse from HWRCs and bulky collections. • Number of swapshops held, number of people attending, tonnage of items diverted. • Numbers of reuse directories distributed. • Number of council call centre referrals to reuse charities.

6. Waste Prevention Activity Action Plans continued

6.4 Nappy Waste

Priority Area	Nappy Waste
Joint Policy	We will promote the benefits of using real nappies and give practical advice on their usage.
2009 -10 Baseline	• The national average for real nappy use is 5%. • These households would prevent 453 tonnes per year of nappy waste. This saves approximately £28,100, in disposal costs of nappies to landfill.
Aims 2010 - 2020	**1. Increase real nappy usage by supporting real nappy trial schemes, loan schemes and events.** **2. Carry out targeted advertising and communications to promote the use of real nappies to parents.** **3. Develop a network of supporters for real nappies e.g. PCT, ante-natal classes, maternity units, GPs and Surestart.**
Target and Waste Prevention Potential 2010 -2020	**Increase the number of parents using real nappies to 10% by 2020** • **It is estimated that using real nappies prevents 367kg of nappy waste per child per year.** • **Use of real nappies in Oxfordshire will save 7,013 tonnes of waste between 2010-2020.** • **This saves approximately £692,000 in disposal costs of nappies to landfill between 2010- 2020.**
Existing Activities	In 2009, OWP supported the county's real nappy suppliers by setting up a trial pack scheme and sponsoring two fairs run by the suppliers. Real nappies are also promoted via an OWP waste prevention information pack "Why Waste?" and the OWP website.
Additional Community Benefits	• May be trigger for householders to undertake further environmental activity. • Cost savings to families.
Measures	• Number of real nappy users. • Use of trial packs and sale of real nappies, based on data from nappy suppliers.

6. Waste Prevention Activity Action Plans continued

6.5 Packaging Waste

Priority Area	Packaging Waste
Joint Policy	We will promote the prevention of packaging waste by providing simple, practical "smart shopping" advice to residents. We will support efforts by retailers, local suppliers and central government to reduce packaging waste at source and spread good news.
2009 -10 Baseline	6000 "Why Waste?" information packs were distributed in 2009 -10. The impact of this work is difficult to quantify.
Aims 2010 - 2020	**1. Develop and maintain a waste prevention information pack.** **2. Promote the use of reusable shopping bags and spread best practice about 'Plastic bag free' towns.** **3. Seek to promote smart shopping messages alongside complementary campaigns (such as food waste prevention and local food).** **4. Promote the government's work on packaging prevention, as well as the efforts of retailers, through lobbying and publicity.**
Waste Prevention Potential 2010 -2020	The impact of this work cannot be easily measured by local authorities; retailers are best placed to measure progress.
Existing Activities	Residents are given advice about smart shopping via the "Why Waste?" information pack and OWP website. CAGs work with local shops and supermarkets on awareness raising events. During 2009 and 2010 OWP supported six 'plastic bag free' initiatives in towns and districts.
Additional Community Benefits	• May be trigger for householders to undertake further environmental activity.
Measures	• Number of "Why Waste?" packs distributed. • Number of reusable bags issued. • Waste compositional analyses will be used over time to measure the amount of packaging within the household waste stream.

6. Waste Prevention Activity Action Plans continued

6.6 Junk Mail

Priority Area	Junk Mail
Joint Policy	We will provide information and advice to help residents and local businesses reduce junk mail.
2009 -10 Baseline	Membership of the Mailing Preference Service (MPS) is currently 78,276 households within Oxfordshire (as of December 2009). This prevents 313 tonnes of junk mail arriving at Oxfordshire doors, saves £7,394 in disposal costs and has a CO_2 saving of 232 tonnes.
Aims 2010 - 2020	**Encourage households to reduce junk mail at source by promoting opt out services such as the MPS.**
Target and Waste Prevention Potential 2010 -2020	**Aim to increase registrations to the MPS by 10% to 86,500 households by 2020.** • **It is estimated that registering with the MPS. prevents 4kg/hh/yr of junk mail waste.** • **This activity would lead to an estimated 3,309 tonnes of avoided junk mail 2010 - 2020.** • **This equates to around £88,800 in avoided disposal costs.** • **Estimated avoided CO2 of 2,078 tonnes.**
Existing Activities	Opportunities to cut down on junk mail are promoted via our "Why Waste?" information pack and OWP website.
Additional Community Benefits	• May be trigger for householders to undertake further environmental activity.
Measures	• Number of households signed up to the MPS.

6. Waste Prevention Activity Action Plans continued

6.7 Commercial and Industrial

Priority Area	Commercial and Industrial
Joint Policy	We will introduce measures to remove trade waste from the household stream and provide viable alternatives for trade waste disposal. We will support businesses in reducing their waste, and recognise their achievements.
2009 -10 Baseline	Previous analysis has been around increasing recycling rather than measuring waste prevention: no baseline figures available.
Aims 2010 - 2020	**1. Continue to promote Environmental Audits as a way to identify opportunities to reduce business waste.** **2. Promote and develop commercial waste reuse schemes such as www.retrader.org.uk.** **3. Provide information on services, advice and initiatives for resource efficiency to businesses.** **4. Assess needs of Oxfordshire businesses and identify a network of supporters for business resource efficiency in Oxfordshire.** **5. Support the introduction of van permits, in order to prevent trade waste entering HWRCs.** **6. Expand the infrastructure provided to businesses for waste prevention, reuse and recycling by the public and private sectors.**
Target and Waste Prevention Potential 2010 -2020	• **Use of www.retrader.org.uk and waste prevention identified in commercial waste audits has the potential to divert 3,770 tonnes from landfill and save business £365,000 in disposal costs.** • **It should be noted that the figure above quantifies solely waste prevention. There will be additional significant savings in recycling to businesses.**

6. Waste Prevention Activity Action Plans continued

6.7 Commercial and Industrial continued

Priority Area	Commercial and Industrial
Joint Policy	We will introduce measures to remove trade waste from the household stream and provide viable alternatives for trade waste disposal. We will support businesses in reducing their waste, and recognise their achievements.
Existing Activities	Environmental audits are promoted to businesses. A website (**www.retrader.org.uk**) has been set up allowing businesses and community groups to exchange resources online. A carbon accounting tool will also allow businesses to assess their environmental footprint in 2010. OWP sponsored the Sustainability Award at the 2009 and 2010 Oxfordshire Business Awards. Workshops and events promoting construction waste reduction took place in 2009/10.
Additional Community Benefits	• Reduction of trade waste within the household waste stream offers potential financial savings to councils. • Reducing waste will help businesses reduce their costs.
Measures	• Take up of environmental audits and follow up surveys • Number of website visits and exchanges facilitated by **www.retrader.org.uk** project

6. Waste Prevention Activity Action Plans continued

6.8 Commercial and Industrial – Waste from Council Activities and Contractors

Priority Area	Commercial and Industrial - Waste from Council Activities and Contractors
Joint Policy	We will seek to minimise waste generated from our own activities.
Waste Prevention Potential 2010 -2020	Audits carried out in 2008 suggest there is in the region of £75,000 of potential savings across all council sites from waste reduction and recycling. Work has since taken place to implement some of these findings and follow up audits are now required.
Aims 2010 - 2020	**1. Continue to audit waste from our own organisations and implement opportunities to reduce waste.** **2. Work with facilities managers to donate redundant furniture and equipment for reuse.** **3. Continue to support schools with waste prevention activity.** **4. Work with council procurement teams to recognise the efforts of green business in our supply chain.**
Existing Activities	Audits of council buildings were carried out in 2008 and action plans developed. Current work is being undertaken to engage council facilities officers with **www.retrader.org.uk** to promote the reuse of redundant items across the community.
Additional Community Benefits	• Benefits to the community through the reuse of resources. • Reduced public spending through waste prevention efforts of OWP councils.
Measures	• Work with facilities teams to collect information on waste arisings. • Number of exchanges of council items on **www.retrader.org.uk.**

7. Implementation

7.1 Targeting Communications

An annual OWP Communication Plan will be produced to reflect the aims of the eight activity areas within the strategy and set out how these will be delivered through marketing and educational campaigns.

As well as promoting each campaign, the Communications Plan will be used to demonstrate the importance of waste prevention to the public by:

- Stressing the importance of, and environmental reasons for, seeking to prevent waste in advance of recycling.
- Setting out what OWP is doing to reduce Oxfordshire's waste and encourage residents to keep up their good work in this area.
- Offering simple, practical advice on how to cut down on waste.

In order to ensure the waste prevention targets identified in the strategy are realised, a joined up approach to communications around recycling and waste prevention will be necessary. For example, an integrated approach across all partnership councils to promote food waste prevention and home composting, prior to using garden and food waste collection services is needed to ensure that householders understand the need for waste prevention.

Working with others

OWP will work with groups such as Community Action Groups, Wild Waste Show and Master Composters. Such groups are well established as waste prevention ambassadors, and well placed to deliver waste prevention messages in their local communities.

There are many private and charitable organisations already working to reduce and reuse waste in Oxfordshire. There is substantial scope for building links with these organisations to take advantage of joint promotions, support one another's initiatives and avoid duplication of effort.

7. Implementation

7.2 Budgets and Delivery

The OWP Waste Reduction Projects Group will be the group responsible for delivering the strategy actions, supported by OWP officers. This group will report progress (as per fig 1 on page 4) to the Officer Strategy Group and Oxfordshire Waste Partnership Joint Committee.

OWP holds a budget on behalf of partner councils for joint communications across Oxfordshire. This budget in 2010/11 is in the region of £185,000. Where approximately £50,000 is spent on recycling promotions and promotions around environmental cleanliness. The remainder of this budget is used for waste prevention activity and allocated proportionally to the waste streams identified in Chapter 5 by priority. Separate budgets for specific waste prevention and recycling campaigns are also retained by the county and district councils.

Since the public consultation phase of this draft strategy closed the October 2010 national Comprehensive Spending Review has been published by Government. This has set out a 26% reduction in local government funding over the next four years (2011 -2015). OWP funding for waste prevention work is likely to be reduced; possibly by as much as 50% in future years. The impact of this reduced funding on the activities and targets set out in this strategy will be monitored closely and if needs be, targets revised to fit with the new funding landscape.

Rt Hon David Cameron, Witney MP and Prime Minister lends his support to waste prevention in Oxfordshire.

8. The Impact of Waste Prevention Activity

Waste prevention seeks to reduce the amount of waste generated in a number of ways such as avoidance (buying items with less packaging, or using real nappies), reuse (circulating unwanted items in the community) or dealing with waste at home (home composting).

Where these activities prevent waste before it is collected and disposed of by councils, it has been difficult to measure their impact by traditional means, as this involves attempting to quantify "what isn't there." Quantifying the impact of waste prevention activities is however key to demonstrating where time and resources should be invested for greatest effect.

Reliable research has now been carried in some areas to allow us to predict the impact of different waste prevention behaviours. This allows us to estimate the amount of waste that would have been in the waste stream had the waste prevention behaviour not taken place, and also the cost that would have been incurred in disposing of that waste.

Some waste streams remain difficult to measure and as such have not been included. The cost saving figures used take into account solely the cost of disposing of waste. The avoided cost of disposal for each activity has been based on the usual disposal route for that waste. For example, when nappies are disposed of, a landfill cost is incurred. Understanding the amount of nappy waste real nappies would prevent and cost to dispose of that waste in landfill allows a saving to be calculated. For home composting the avoided cost is a mixture of landfill costs and green waste recycling costs, as garden waste that is not prevented may end up in the household garden waste recycling bin or the residual bin.

All costs are based on median costs per tonne taken from WRAP Gate Fees Report 2009. These are close to Oxfordshire commercial costs and therefore give useful indicative information on savings (see appendix 2H for further information).

There may be further savings through avoided LATS costs but these are more difficult to reliably quantify, due to uncertainty around the price of LATS permits and future waste arisings trends.

Collection cost savings also involve some uncertainty. Collection cost savings tend to occur in step-changes associated with the deployment of vehicles and crews and can be difficult to work back to like for like relationship between tonnages and costs.

Costs savings and avoided tonnages take into the account the ongoing effect of those households who have purchased compost bins through a discount scheme in recent years, and those households currently undertaking food waste prevention in the home who will continue to do so.

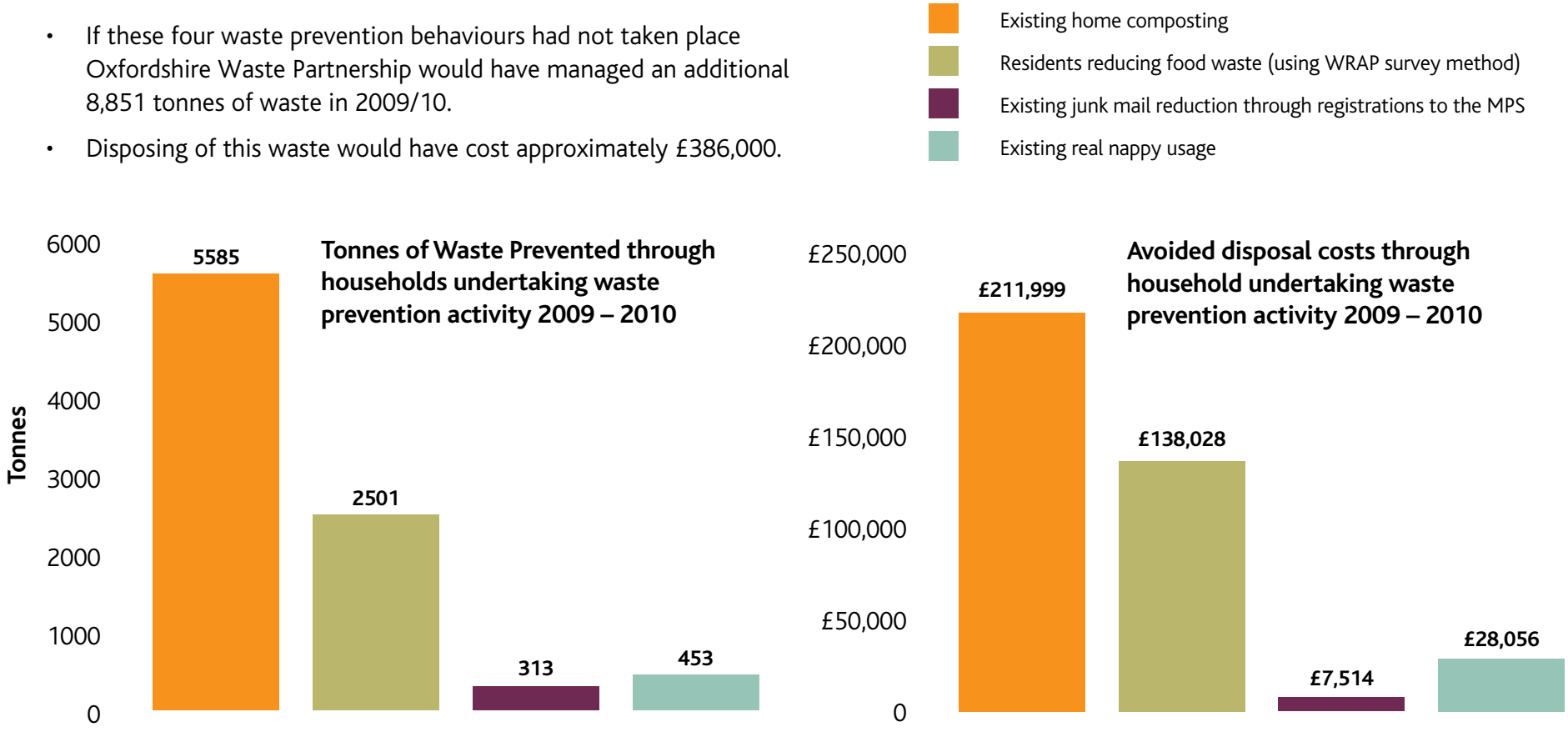
The CO_2 savings from dealing with waste in more sustainable ways is also beginning to be understood. The CO_2 factors published by DEFRA have been used to estimate the CO_2 benefit of home composting, food and junk mail reduction activities. These calculations are set out in appendix 3.

8. The Impact of Waste Prevention Activity

8.1 The Impact of Waste Prevention in 2009-2010

The graphs below shows the likely amount of waste prevented by households taking part in waste prevention activity in 2009 - 2010 and the associated avoided costs.

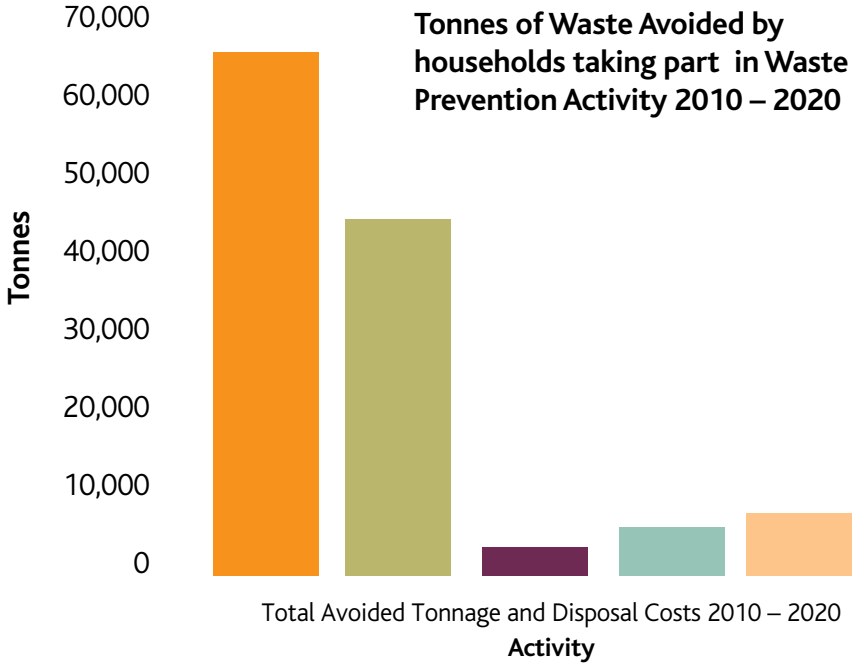
- If these four waste prevention behaviours had not taken place Oxfordshire Waste Partnership would have managed an additional 8,851 tonnes of waste in 2009/10.
- Disposing of this waste would have cost approximately £386,000.

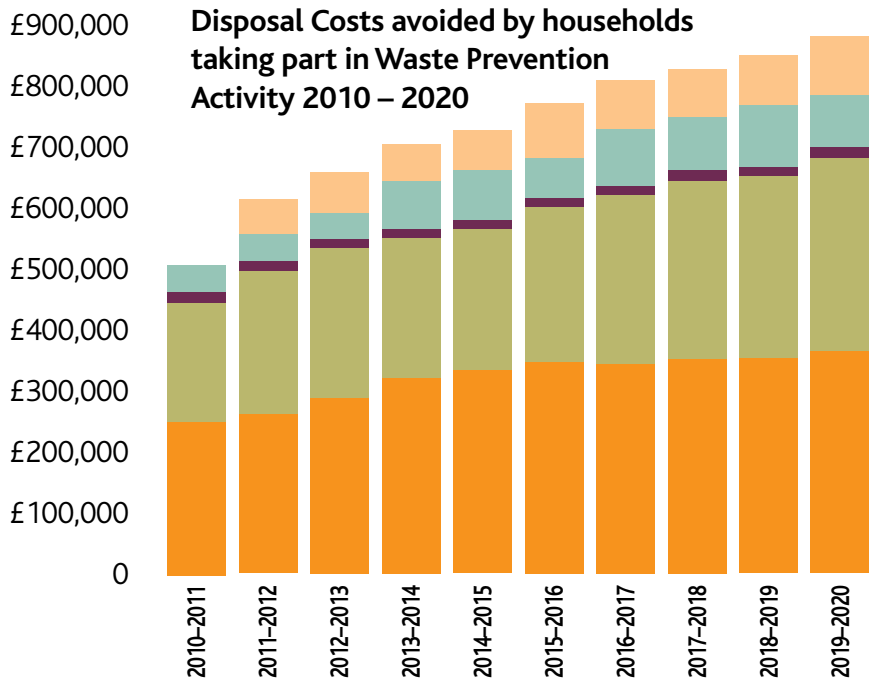


8. The Impact of Waste Prevention Activity

8.2 Predicted Impact of Household Waste Prevention 2010 -2020

The graph below shows the predicted impact of each waste prevention activity identified in Section 6 (where these are measurable) between 2010 and 2020.





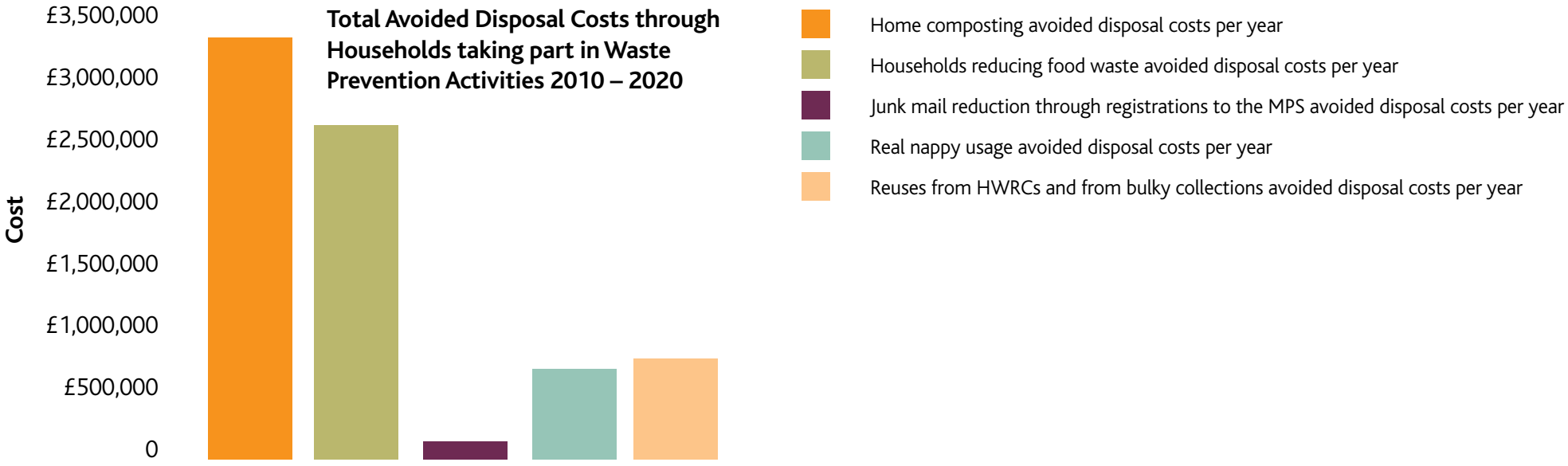
- Home composting
- Households reducing food waste
- Junk mail reduction through registrations to the Mailing Preference Service
- Real nappy usage
- Reuses from HWRCs and from bulky collections

- Home composting avoided disposal costs per year
- Households reducing food waste avoided disposal costs per year
- Junk mail reduction through registrations to the MPS avoided disposal costs per year
- Real nappy usage avoided disposal costs per year
- Reuses from HWRCs and from bulky collections tonnes prevented per year

8. The Impact of Waste Prevention Activity

8.2 Predicted Impact of Household Waste Prevention 2010 -2020 continued

The impact of home composting and food waste prevention activity is significant in preventing waste and the cost avoided in disposing of waste. The impact is cumulative in people buying a home compost bin in one year and continuing to use it in following years. This demonstrates a clear driver for OWP to invest resources in projects and campaigns promoting these work areas.



8.2 Predicted Impact of Household Waste Prevention 2010 -2020 continued

- **Approximately 126,000 tonnes of waste can be prevented (between 2010 and 2020) by existing and new activity around the 5 waste prevention activities outlined above.**
- **This represents £7.4 million that can be saved in avoided disposal costs, and over 360 million tonnes of CO2 equivalents.**

There will also be cost savings in avoided collection and transport of the waste. Collection costs for Oxfordshire councils averaged £59 per tonne of waste in 2009. Attributing this cost to the tonnage of waste prevented through the life of this strategy would represent over £7 million in avoided collection costs. It is however recognised that waste collection entails many fixed costs (such as vehicles) and it is difficult to attribute a one tonne reduction in waste to the equivalent reduction in collection costs.

It should be remembered that these savings represent only the areas of waste prevention activity that can be modelled with some certainty. They are therefore likely to be a significant underestimate of the total impact of waste prevention activity. However, they serve as a useful indicator as to the magnitude of savings that may be expected and the investment that should be made in these areas.

8.3 Monitoring & review

Measures for each of our waste prevention activities are set out in section 6. These will be monitored on a monthly basis wherever practical and will be reported to the OWP Joint Committee on a quarterly basis. In addition, measures will be reported wider on an annual basis as part of the OWP annual report. As with all other parts of our Joint Municipal Waste Management Strategy, this strategy will be subject to a five-year review.

9. Consultation & Next Steps

The draft waste prevention strategy was approved for public consultation by the Oxfordshire Waste Partnership Joint Committee on 23rd July 2010. A public consultation exercise ran from 9th August to 24th September. This took the form of an on-line questionnaire hosted by the Oxfordshire County Council website. A paper version was also available on request. The consultation was advertised by a press release issued to the local media and through all known waste and environmental networks within the county.

Twenty-two responses were received. Five responses were from organisations, with the remaining seventeen coming from individual members of the public. There was broad support for the strategy, as set out in figure 4. 77% of respondents agreed that the ten key principles on which the strategy is based are appropriate.

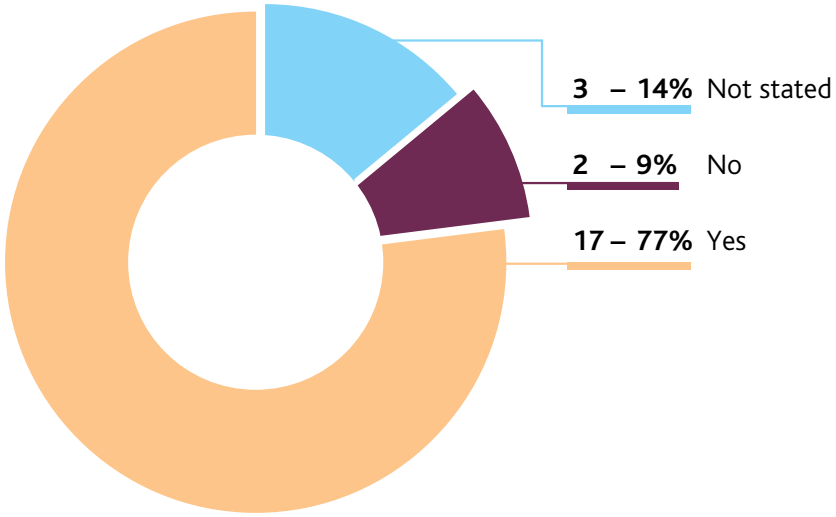


Figure 4 Support for the strategy's key principles

Respondents were also asked to comment on the aims set out for dealing with different material streams, their ideas for preventing waste and also for any other general comments on the draft strategy.

The main themes that emerged from the consultation are that:

- **OWP should focus on business and commercial waste reduction as well as household waste;**
- **Our priorities should not only be based on the largest waste streams or on where we can save most money, but also on the environmental benefits of reducing certain waste streams (the CO_2 impact);**
- **Care needs to be taken with our use of language, so that it avoids being too simplistic/patronising, but is also accessible and avoids technical jargon;**
- **Rewarding residents for reducing waste or recycling should be considered;**
- **There was broad support for working with community groups and charities on waste reuse and for the continued promotion of home composting alongside new food waste collections. In addition to this there were also a number of good ideas on reducing waste, which can be incorporated into the strategy's implementation plan.**

In response to this feedback the finalised strategy now includes where possible information on the CO_2 impact of waste prevention activities. The strategy has rewritten in order to improve readability and avoid technical "jargon". Opportunities for rewarding waste reduction are to be explored as part of the strategy implementation plan.

Appendices

Appendix 1: Glossary

Glossary of terms and acronyms

CAGs – Community Action Groups, Oxfordshire County Council funded project supporting local communities to reduce waste and become more resource efficient.

CO_2 – Carbon dioxide; a natural gas believed to be responsible for global warming. Sometimes referred to as a 'greenhouse gas'.

Carbon benefit – a reduction in carbon dioxide or carbon-dioxide equivalent emissions.

Committed Food Waste Reducer – a measure devised by the Waste and Resources Action Programme to identify individuals that make an effort to reduce the amount of food waste they produce.

DEFRA – Department of Environment, Food and Rural Affairs. UK government department.

HWRCs – Household Waste Recycling Centres. Sites operated by Oxfordshire County Council for the disposal and recycling of household waste.

Junk Mail – Unwanted direct mail.

Landfill Tax – a tax on the disposal of waste to landfill levied by HM Revenue & Customs.

LATS – Landfill Allowance Trading Scheme. A tradable allowance scheme for local authorities in England, established to help meet the landfill reduction targets set by the EU Landfill Directive. Each waste disposal authority has an amount of waste it is allowed to landfill. Authorities must trade allowances between each other to ensure that the overall landfill limit is not breached.

Local Area Agreements – three year action plans developed by councils and local partners and agreed with national government.

Love Food Hate Waste – a campaign devised by the Waste and Resources Action Programme encouraging residents to reduce the amount of edible food they waste.

Mailing Preference Service – a free service funded by the direct mail industry to enable residents to have their names and home addresses in the UK removed from mailing lists.

Master Composters – volunteers who encourage and support householders to compost at home.

National Indicator – Local authority performance measures set by government.

Appendices

Appendix 1: Glossary continued

OWP – Oxfordshire Waste Partnership, partnership of the Oxfordshire county and district councils working together on waste management.

PAT – Portable Appliance Testing. Tests the safety of small electrical goods.

Real Nappies – reusable cloth nappies.

Performance improve Management – a management process to measure and the performance of an organisation.

Joint Municipal Waste Management Strategy – statutory plan developed by councils for managing waste in a local area.

Sustainable Community Strategy – a long-term planning document for improving the quality of life and services in a local area.

Trade Waste – waste from commercial premises.

Waste Management Hierarchy – a framework setting out the order in which the options for waste management should be considered.

Waste Prevention – reducing the amount of waste produced. This option is at the top of the Waste Management Hierarchy.

WRAP – Waste and Resources Action Programme, UK government funded agency helping businesses, local authorities and individuals to become more resource efficient.

WRPG – Waste Reduction Projects Group, Officer group within Oxfordshire Waste Partnership.

WWS – Wild Waste Show, an educational project delivered by the Northmoor Trust and funded by Oxfordshire Waste Partnership.

Appendix 2a: Home Composting Diversion Calculations and Method

Year	Number of compost bins active in Oxfordshire[1]	Tonnage per year diverted [2]	Cost Saving of Diversion per year. [3]
Baseline April 09 -10	37230	5584.5	£ 211,998.79

TARGET: Engage an additional 2000 composters per year through bin sales (4000 for year 1)

Year	TARGET: Number of compost bins to be sold	Cumulative Total bins sold (including all active compost bins sold pre-2010)	Minus Lapse Rate 3.9% per year	Tonnage diverted overall in year [2]	Cost savings overall in year [3]
Year 2010 - 2011	4000	41230	39622	6185	£ 254,299.47
Year 2011 - 2012	2000	41622	39999	6243	£ 276,488.09
Year 2012 - 2013	2000	41999	40361	6300	£ 299,003.66
Year 2013 - 2014	2000	42361	40709	6354	£ 321,831.83
Year 2014 - 2015	2000	42709	41043	6406	£ 344,959.14
Year 2015 - 2016	2000	43043	41364	6456	£351,172.95
Year 2016 - 2017	2000	43364	41673	6505	£357,404.68
Year 2017 - 2018	2000	43673	41970	6551	£ 363,658.30
Year 2018 - 2019	2000	43970	42255	6595	£ 369,937.74
Year 2019 - 2020	2000	44255	42529	6638	£ 376,246.88

Total Diversion 2010 -2020 from all active compost bins (including those sold pre 2010) (tonnes)	Total cost saving 2010- 2020 from all active compost bins (including those sold pre 2010)
64234	£ 3,315,002.75

[1] Based on sales data for Oxfordshire 2002 - 2010. Figures are based only on bin sales through Council schemes and do not include homemade compost heaps/bins or compost bins bought from other outlets. Lapse rates applied at 7% p.a. pre-WRAP scheme (2007) and 3.9% p.a. through WRAP scheme

[2] A composter diverts 150kg p.a. from the municipal waste stream (conservative figure from WRAPs Home Composting District Level Analysis October 2009)

[3] Savings assume 100kg per year is diverted from green waste recycling, 50kg from disposal to landfill (from WRAP's Home Composting District Level Analysis October 2009)

Appendix 2b Food Waste Reduction Calculations and Method

Year	Percentage of "Committed Food Waste Reducers" [1]	Equals "x" number of households [4]	Tonnage per year diverted [2]	Avoided disposal costs per year [5]
Baseline April 09 -10	12% of Oxfordshire households [3]	32058	2500.5	£ 138,028

Target: Increase number of Committed Food Waste Reducers to 25% of Oxfordshire residents by 2020

Year	TARGET: Percentage of Committed Food Reducers	Equates to "x" number of households total [4]	Total Tonnage diverted by all Committed Food Waste Reducers [2]	Total Cost Saving in avoided disposal costs p.a. [5]
Year 2010 - 2011	17	45415	3542	£ 214,753
Year 2011 - 2012	18	48087	3751	£ 223,719
Year 2012 - 2013	19	50758	3959	£ 236,091
Year 2013 - 2014	20	53430	4168	£ 242,258
Year 2014 - 2015	21	56101	4376	£ 241,305
Year 2015 - 2016	22	58773	4584	£257,118
Year 2016 - 2017	23	61444	4793	£273,414
Year 2017 - 2018	24	64116	5001	£ 290,208
Year 2018 - 2019	24.5	65451	5105	£ 301,362
Year 2019 - 2020	25	66787	5209	£ 312,829
			Total Diversion 2010 -2020 (tonnes)	Total avoided disposal costs 2010-2020
			44488	£ 2,593,058

[1] "Committed food waste reducer" is a measurement of the commitment of an individual to reducing food waste

[2] A Committed Food Waste Reducer will produce 78kg less food waste per year than an average resident (WRAP - The Food we Waste Report 2008)

[3] OWP survey March 2009

[4] Based on 267148 total Households in Oxfordshire (09/10 data)

[5] Assume 40/60 of diversion food/residual in early years, rising to 90/10 food/residual diversion in 2014/15 as more households have access to food waste recycling

Appendix 2c: Junk Mail Reduction Calculations and Method

Year	Number of registrations with Mailing Preference Service [1]	Tonnage per year diverted [4]	Avoided disposal costs
Baseline April 09 -10	78276	313.104	£ 7,514

Target: Increase registrations to the Mailing Preference Service by 10% by 2020

Year	TARGET: New registrations to the MPS in year	Total number registered with MPS	Cost savings from avoided disposal
Year 2010 - 2011	783	316.2	£ 7,741
Year 2011 - 2012	791	319.4	£ 7,975
Year 2012 - 2013	798	322.6	£ 8,216
Year 2013 - 2014	806	325.8	£ 8,464
Year 2014 - 2015	815	329.1	£ 8,720
Year 2015 - 2016	823	332.4	£ 8,983
Year 2016 - 2017	831	335.7	£ 9,254
Year 2017 - 2018	839	339.0	£ 9,534
Year 2018 - 2019	848	342.4	£ 9,822
Year 2019 - 2020	856	345.9	£ 10,118
		TOTAL WASTE PREVENTED 2010 -2020	TOTAL COST SAVING 2010 - 2020
		3308.5	£ 88,829

[1] Data from Mailing Preference Service December 2009

[2] Research indicates registering with the MPS reduces waste by 4kg per household per year

Appendix 2d: Real Nappy Waste Reduction Calculations and Method

Year	Number of children using Real Nappies[1]	Tonnage per year diverted [2]	Cost savings in disposal
Baseline April 09 -10	1233	453	£ 28055.68

Target: To increase Real Nappy Usage to 10% of nappy wearing children by 2020

Year	TARGET: Number of children wearing Real Nappies	Tonnage of Waste prevented	Cost savings from avoided disposal
Year 2010 - 2011	1356	498	£ 35,055.25
Year 2011 - 2012	1479	543	£ 42,828.97
Year 2012 - 2013	1603	588	£ 51,372.45
Year 2013 - 2014	1726	633	£ 60,687.03
Year 2014 - 2015	1849	679	£ 70,774.05
Year 2015 - 2016	1972	724	£ 75,843.98
Year 2016 - 2017	2096	769	£ 80,965.33
Year 2017 - 2018	2219	814	£ 86,139.59
Year 2018 - 2019	2342	860	£ 91,368.27
Year 2019 - 2020	2466	905	£ 96,652.93
		TOTAL DIVERSION 2010 -2020	TOTAL COST SAVING 2010 - 2020
		7012.5	£ 691,687.86

[1] Assume 5% of children in Oxfordshire use Real Nappies as WRAP guidance

[2] Based on WRAP research, an average baby using Real Nappies will save 367 kg of waste from landfill per year compared to a baby using disposables

Appendix 2e: Bulky Waste Calculations and Method

Target: To divert 1% of waste at existing Household Waste Recycling Centres (HWRCs) for Reuse [1]
Target: To divert 10% of bulky collections for Reuse in two districts by the end of 2012, and all 5 Districts by 2013–2014[2]
Target: To divert 1% of waste at new HWRC for reuse

Year	TARGET: Aim to divert 10% of all bulky waste to reuse in all district authorities Tonnage diverted [2]	TARGET: 1% of waste at HWRCs [1]	TARGET: 1% at new HWRCs [3]	Total Tonnage	Cost savings from avoided disposal
Year 2010 - 2011	0	0	120	0	£ -
Year 2011 - 2012	48	600	120	768	£ 54,097.92
Year 2012 - 2013	120	600	120	840	£ 66,266.59
Year 2013 - 2014	120	600	120	840	£ 73,371.12
Year 2014 - 2015	120	600	120	840	£ 80,483.35
Year 2015 - 2016	120	600	120	840	£ 87,603.41
Year 2016 - 2017	120	600	120	840	£ 88,011.48
Year 2017 - 2018	120	600	120	840	£ 88,427.71
Year 2018 - 2019	120	600	120	840	£ 88,852.27
Year 2019 - 2020	120	600	120	840	£ 89,285.31
				TOTAL DIVERSION 2010 -2020	TOTAL COST SAVING 2010 - 2020
				7488	£ 716,399.16

[1] Total tonnage at existing HWRCs assumed to be 60,000 p.a.

[2] Bulky waste tonnages are variable across months and districts. Assumption is based on average 240 tonnes per year for each district.

[3] Assume throughput of 12,000 tonnes p.a.

Appendix 2f: Commercial Waste Reduction Calculations and Method

Year	Tonnage of Trade Waste Reduced [1]	Cost savings in disposal to businesses
Baseline April 09 -10	50	£ 3,100

Target: To divert 330 tonnes of waste from landfill through **www.retrader.org.uk**
Target: To reduce waste from 50 business by 1 tonne per business through business audits

Year	TARGET: Tonnage diverted by **www.retrader.org.uk**	TARGET: Tonnage of Waste Reduction Through Waste Audits	Total Tonnage	Cost savings from avoided disposal p.a.
Year 2010 - 2011	300	50	350	£ 24,654.00
Year 2011 - 2012	330	50	380	£ 29,977.74
Year 2012 - 2013	330	50	380	£ 33,191.70
Year 2013 - 2014	330	50	380	£ 36,409.13
Year 2014 - 2015	330	50	380	£ 39,630.12
Year 2015 - 2016	330	50	380	£ 39,814.72
Year 2016 - 2017	330	50	380	£ 40,003.01
Year 2017 - 2018	330	50	380	£ 40,195.07
Year 2018 - 2019	330	50	380	£ 40,390.97
Year 2019 - 2020	330	50	380	£ 40,590.79
			TOTAL TONNAGE PREVENTED 2010 -2020	
			3770	£ 364,857.26

[1] 50 audits carried out with businesses with 1 tonne waste reduction potential per business NB. This only takes into account waste reduction, there are additional substantial savings from recycling

Appendix 2g: Summary of Predicted Waste Prevention Impact 2010 -2020

Year	Home Composting		Households Reducing Food Waste		Junk Mail Reduction through registrations to the Mailing Preference Service		Real Nappy Usage		Reuse from HWRCs and from Bulky Collections		Waste reduction from Trade Waste Audits and **www.retrader.org.uk**	
	Tonnes prevented per year	Avoided Disposal Costs per Year	Tonnes prevented per year	Avoided Disposal Costs per Year	Tonnes prevented per year	Avoided Disposal Costs per Year	Tonnes prevented per year	Avoided Disposal Costs per Year	Tonnes prevented per year	Avoided Disposal Costs per Year	Tonnes prevented per year	Avoided Disposal Costs per Year
2010 - 2011	6185	£254,299	3542	£214,753	316	£7,741	498	£35,055	0	£-	350	£7,741
2011 - 2012	6243	£276,488	3751	£223,719	319	£7,975	543	£42,829	768	£54,098	380	£7,741
2012 - 2013	6300	£299,004	3959	£236,091	323	£8,216	588	£51,372	840	£66,627	380	£7,741
2013 - 2014	6354	£321,832	4168	£242,258	326	£8,464	633	£60,687	840	£73,371	380	£7,741
2014 - 2015	6406	£344,959	4376	£241,305	329	£8,720	679	£70,774	840	£80,483	380	£7,741
2015 - 2016	6456	£351,173	4584	£257,118	332	£8,983	724	£75,844	840	£87,603	380	£7,741
2016 - 2017	6505	£357,405	4793	£273,414	336	£9,254	769	£80,965	840	£88,011	380	£7,741
2017 - 2018	6551	£363,658	5001	£290,208	339	£9,534	814	£86,140	840	£88,428	380	£7,741
2018 - 2019	6595	£369,938	5105	£301,362	342	£9,822	860	£91,368	840	£88,852	380	£7,741
2019 - 2020	6638	£376,247	5209	£312,829	346	£10,118	905	£96,653	840	£89,285	380	£7,741
Total Avoided Tonnage and Disposal Costs 2010–2020	64,234	£3,315,003	44,488.16	£2,593,058	3308.52	£88,829	7012.5	£691,688	7,488	£716,399	3,770	364,857

Appendix 2h: Disposal and Reprocessing Costs used in calculations

All processing costs in this document are based on the Waste and Resources Action Programme (WRAP) Gate Fees Report 2009 - "Comparing the cost of alternative waste treatment options." The median cost of each category of material and processing type has been used. http://www.wrap.org.uk/downloads/W504GateFeesWEB.b5cc2ee8.7613.pdf All costs are inflated at 2% per year from 09-10 baselines

	Landfill Tax[3]	Landfill Disposal - cost per tonne[4]	Averted disposal costs to landfill - Total cost per tonne (disposal and tax)	Food Waste Composting - cost per tonne[7]	Garden waste centralised composting - cost per tonne [5]	Averted Disposal Cost for Home composting - per tonne[1]	Averted Disposal Cost for Love Food Hate Waste - per tonne [2]	Averted disposal cost for junk mail reduction per tonne - cost per tonne [6]
Disposal in 09 -10	40	22.00	62.00	45.00	26.00	37.96	55.20	24.00
Disposal in 10 -11	48	22.44	70.44	45.90	26.52	41.12	60.62	24.48
Disposal in 11 -12	56	22.89	78.89	46.82	27.05	44.29	59.65	24.97
Disposal in 12 -13	64	23.35	87.35	47.75	27.59	47.46	59.63	25.47
Disposal in 13 -14	72	23.81	95.81	48.71	28.14	50.65	58.13	25.98
Disposal in 14 -15	80	24.29	104.29	49.68	28.71	53.85	55.14	26.50
Disposal in 15 -16	80	24.78	104.78	50.68	29.28	54.39	56.09	27.03
Disposal in 16 -17	80	25.27	105.27	51.69	29.87	54.95	57.05	27.57
Disposal in 17 -18	80	25.78	105.78	52.72	30.46	55.51	58.03	28.12
Disposal in 18 -19	80	26.29	106.29	53.78	31.07	56.09	59.03	28.68
Disposal in 19 -20	80	26.82	106.82	54.85	31.69	56.68	60.05	29.26

[1] 150kg/hh/yr diverted by home composting: 100 kg would have ended up in a garden waste collection/ 50kg would have ended up in a residual bin for landfill (from WRAPs Home Composting District Level Analysis October 2009)

[2] Assume 40/60 of diversion food/residual in 2010/11, rising to 90/10 food/residual diversion by 2014/15 as more households use food waste collection systems for disposal

[3] Assumes constant landfill tax post 2013

[4] Approximately 1/5 of Oxfordshire's collected garden waste is composted at an In Vessel Composting Facility. The remainder is composted in Windrows. Costs are based on WRAP Gate fee Report 2009, Median Costs per Tonne (£23 per tonne Windrow and £38 tonne IVC) and adjusted to reflect the proportions sent to each processor.

[5] Based on WRAP Gate Fee Report 2009 Median Cost for Landfill (£22 per tonne) have access to food waste recycling

[6] Based on WRAP Gate Fees Report 2009 Median Cost for Processing Paper, Card, Cans and Plastics at a Materials Recovery Facility (£24 per tonne)

[7] Assumes 50% composting goes to In Vessel Composting (IVC) Facility and 50% to an Anaerobic Digestion (AD) Plant. Based on WRAP Gate Fee Report Median Cost for AD (£52 per tonne) and IVC (£38 per tonne)

Appendix 3a: Carbon savings from food waste reduction campaign ("Love Food Hate Waste")

Year	Percentage of "Committed Food Waste Reducers" [1]	Equals "x" number of households [4]	Tonnage per year diverted [2]	Carbon savings per year (kg CO_2 equivalent) [5, 6, 7]
Baseline April 09 -10	12% of Oxfordshire households [3]	32,058	2,501	10,486,019

Year	Total Tonnage diverted by all Committed Food Waste Reducers [2]	Carbon savings per year (kg CO2 equivalent) [5, 6, 7]
Year 2010 - 2011	3,542	14,855,193
Year 2011 - 2012	3,751	15,407,513
Year 2012 - 2013	3,959	16,093,798
Year 2013 - 2014	4,168	16,762,220
Year 2014 - 2015	4,376	17,412,781
Year 2015 - 2016	4,584	18,241,961
Year 2016 - 2017	4,793	19,071,141
Year 2017 - 2018	5,001	19,900,321
Year 2018 - 2019	5,105	20,314,911
Year 2019 - 2020	5,209	20,729,501

Total Diversion by all Committed Food Waste Reducers 2010 -2020 (tonnes)	Total Carbon Savings 2010-2020 (kg CO_2 equivalent)	Car mileage equivalent [8]	Number of cars removed from the road [9]
44,498	178,789,343	881,743,632	7,348

Tonnage diverted from Committed Food Waste Reducers added this year	Carbon savings per year from new Committed Food Waste Reducers (kg CO2 equivalent) [5, 6, 7]
1,042	4,369,175
208	855,973
208	847,042
208	838,111
208	829,180
208	829,180
208	829,180
208	829,180
104	414,590
104	414,590

Total Diversion by new Committed Food Waste Reducers 2010 -2020 (tonnes)	Total Carbon Savings by new Committed Food Waste Reducers 2010-2020 (kg CO_2 equivalent)	Car mileage equivalent [8]	Number of cars removed from the road [9]
2,709	11,056,201	54,526,374	454

[1] "Committed food waste reducer" is a measurement of the commitment of an individual to reducing food waste2

[2] A Committed Food Waste Reducer will produce 78kg less food waste per year than an average resident (WRAP - The Food we Waste Report 2008)

[3] OWP survey March 2009

[4] Based on 267148 total Households in Oxfordshire (09/10 data)

[5] Assume 40/60 of diversion food/residual in early years, rising to 90/10 food/residual diversion in 2014/15 as more households have access to food waste recycling

[6] Assume 28% food to IVC and 72% to AD. All districts collect food waste separately apart from Cherwell who co-collect and send to IVC. Oxford City send half of food to IVC.
28% derived from http://www.defra.gov.uk/evidence/statistics/environment/wastats/archive/mwb200809a.xls
2008/9 MSW arising for Cherwell = 58,742 t. Oxford City = 57,534 t. Total for Oxfordshire of 312,230 t. (58,742 + (57,34/2))/312,230 = 28%

[7] Assumes that the carbon saving is a combination of reductions in embedded energy associated with food production plus the subsequent waste management route.

[8] Number of miles that would need to be driven in a VW Golf Tdi (126 g CO_2 per km) to produce the CO_2 emissions. Source: http://www.vcacarfueldata.org.uk

[9] Assuming ten year car lifespan and annual mileage of 12,000 miles. Does not account for CO_2 impacts of car construction, maintenance and disposal

Appendix 3b: Carbon savings from junk mail reduction

Year	Number of registrations with Mailing Preference Service [1]	Tonnage per year diverted [2]	Carbon Saving of Diversion per year (kg CO_2 equivalent). [3]
Baseline April 09 -10	78,276	313.1	232,386

Year	Tonnage per year diverted	Carbon savings per year (kg CO_2 equivalent) [5, 6, 7]
Year 2010 - 2011	316.2	14,855,193
Year 2011 - 2012	319.4	15,407,513
Year 2012 - 2013	322.6	16,093,798
Year 2013 - 2014	325.8	16,762,220
Year 2014 - 2015	329.1	17,412,781
Year 2015 - 2016	332.4	18,241,961
Year 2016 - 2017	335.7	19,071,141
Year 2017 - 2018	339.0	19,900,321
Year 2018 - 2019	342.4	20,314,911
Year 2019 - 2020	345.9	20,729,501

TOTAL WASTE PREVENTED 2010 -2020	Total carbon saving 2010- 2020 from junk mail prevention kg CO_2 equivalent	Car mileage equivalent [4]	Number of cars removed from the road [5]

Tonnage diverted from new MPS subscribers added this year	Carbon Saving of Diversion per year (kg CO_2 equivalent) from new MPS subscribers [3]
3.13	2,324
3.16	2,347
3.19	2,371
3.23	2,394
3.26	2,418
3.29	2,442
3.32	2,467
3.36	2,491
3.39	2,516
3.42	2,542

TOTAL WASTE PREVENTED 2010 -2020 from new subscribers	Total carbon saving 2010- 2020 from junk mail prevention kg CO_2 equivalent from new MPS subscribers	Car mileage equivalent [4]	Number of cars removed from the road [5]

[1] Data from Mailing Preference Service December 2009

[2] Research indicates registering with the MPS reduces waste by 4kg per household per year

[3] Assumes that the carbon saving is a combination of reductions in embedded energy associated with paper production plus the subsequent waste management route.
Capture rates for Other recyclable paper (Table 22, OWP Waste Compositional Analysis) range from 24-88%. From this, a typical capture rate of 60% has been assumed.

[4] Number of miles that would need to be driven in a VW Golf Tdi (126 g CO_2 per km) to produce the CO_2 emissions. Source: http://www.vcacarfueldata.org.uk

[5] Assuming ten year car lifespan and annual mileage of 12,000 miles. Does not account for CO_2 impacts of car construction, maintenance and disposal

Appendix 3c: Carbon savings of home composting[4]

Year	Number of compost bins active in Oxfordshire [1]	Tonnage per year diverted [2]	Carbon Saving of Diversion per year (kg CO_2 equivalent).
Baseline April 09 -10	37,230	5,585	0

Year	Tonnage diverted overall in year [2]	Carbon Saving of Diversion per year (kg CO_2 equivalent). [3]
Year 2010 - 2011	6,185	0
Year 2011 - 2012	6,243	0
Year 2012 - 2013	6,300	0
Year 2013 - 2014	6,354	0
Year 2014 - 2015	6,406	0
Year 2015 - 2016	6,456	0
Year 2016 - 2017	6,505	0
Year 2017 - 2018	6,551	0
Year 2018 - 2019	6,595	0
Year 2019 - 2020	6,638	0

Total Diversion 2010 -2020 from all active compost bins (including those sold pre 2010) (tonnes)	Total carbon saving 2010- 2020 from all active compost bins (including those sold pre 2010) - kg CO_2 equivalent	Car mileage equivalent [5]	Number of cars removed from the road [6]
3,309	2,077,657	10,246,476	85

[1] Based on sales data for Oxfordshire 2002 -2010. Lapse rates applied at 7% p.a. pre-WRAP scheme (2007) and 3.9% p.a. through WRAP scheme

[2] A composter diverts 150kg p.a. from the municipal waste stream (conservative figure from WRAPs Home Composting District Level Analysis October 2009)

[3] Savings assume 100kg per year is diverted from green waste recycling, 50kg from disposal to landfill. Carbon savings only assumed for fraction diverted from landfill

[4] Figures based only on bin sales through Council partnership schemes. Do not include home made compost heaps/ bins or compost bins bought from other outlets

[5] Number of miles that would need to be driven in a VW Golf Tdi (126 g CO_2 per km) to produce the CO_2 emissions. Source: http://www.vcacarfueldata.org.uk

[6] Assuming ten year car lifespan and annual mileage of 12,000 miles. Does not account for CO_2 impacts of car construction, maintenance and disposal

Appendix 3d: Greenhouse gas conversion factors

Waste fraction	kg CO_2e emitted per tonne virgin material [2]	Net kg CO_2e emitted per tonne of waste treated / disposed of by 1:					
		Recycling		Energy from waste		Composting	Landfill
		Open Loop[7]	Closed Loop[7]	Power only moving grate	Anaerobic Digestion		
Paper and Card	950	-713		-500	-121	57	550
Kitchen/food waste	4,000			-89	-100	30	365
Garden/plant waste	89			-121	-100	57	210
Other organic	0	44		-271	-330	34	230
Wood	256	-6		-700		250	930
Textiles	19,294		-3,800	600			300
Plastic (dense)	3,100		-1,500	1,800			40
Plastic (film)	2,500		-1,000	1,800			35
Ferrous metal	3,100		-1,300	-786			10
Non-ferrous metal	11,000		-9,000	23			10
Silt/soil	4	16		35			10
Aggregate materials	8		-4	35			10
Misc combustibles	102	58		242			305
Glass	840	2	-315	5			10
Tyres	3,410	-20	-2,900	-1,500			
Estimated impact of other materials (municipal and C&I)	2,860	-259		97	-13	7	81

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