



Bristol City Council

Towards a Zero Waste Bristol: Waste and Resource Management Strategy

April 2016

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Why Update the Strategy?

Since Bristol City Council's previous Waste and Streetscene Strategy was written in 2009, there have been a number of changes to the legislative, policy and local context affecting waste and streetscene services which need to be reflected in an updated strategy. The Council now has an elected Mayor, for example, and operates in a very different financial context than it did in 2009. The city has also changed, both demographically and economically. Taken together, these changes prompt new considerations for the Council as it prepares to assess options for the future of waste and recycling and streetscene services in the Bristol area.

This refreshed strategy takes on a new title, acknowledging that the majority of waste can be avoided and can become a valuable resource. It is an aspirational strategy aimed at the city as a whole, not just the city council. There are certainly challenges to be faced, not least in terms of the ongoing financial pressures faced by many individuals and businesses as well as the public sector. However, such financial challenges make it even more important to re-think our whole approach to waste and resource management and explore new approaches and opportunities. Worldwide, reserves of key manufacturing resources such as fossil fuels, wood, metals, minerals and aggregates are all diminishing, while exploration and extraction costs are rising. In Paris in December 2015, a historic global commitment to reduce carbon emissions was agreed by 195 countries and will be an important driver for worldwide change going forward. Moving towards a more 'circular economy', where goods and materials are constantly re-used and recycled rather than discarded as waste can help contribute to protecting both the economy and the environment.

Tackling environmental issues like waste, flytipping and graffiti requires action from everyone, not just the local authority. In light of the ongoing budget cuts faced by every local authority, it has become even more important to work more closely with partners. This includes not just our neighbouring West of England local authorities, but also organisations with a significant presence in the city. It also means developing and working more closely with the voluntary and community sector and empowering citizens to tackle local environmental quality issues within their own neighbourhoods.

Cleaner, greener environments can help support a wide range of objectives – on health, employment, transport, education etc. If parks are cleaner and greener, more children will use them, increase their social networks and become fitter. If streets are cleaner, people will be more likely to cycle and walk, reducing illness and obesity associated with inactive lifestyles. A cleaner well-used area creates a feeling that Bristol is cared-for and safe and helps discourage anti-social behaviour and crime.

Stakeholder input has contributed to this strategy refresh. Bristol's 14 Neighbourhood Partnerships have undertaken extensive work to identify their priorities and draw up individual Neighbourhood Plans. Many comments were made about waste and the local

environment which have been taken into account as part of this strategy refresh. The Council's Scrutiny Commissions have also contributed, with the Neighbourhoods and Place Scrutiny Commissions holding two Inquiry Days in November 2014 and March 2015 to consider current waste technologies and processes and how best they could be used in regard to the future management of the city's waste. Members recommended that a reduction in the volumes of waste within the city could best be achieved by pursuing a programme of renewed education and enforcement, using all of the tools available to enforce non-compliance issues.

This strategy outlines the vision and overall objectives for the city in terms of its future waste and streetscene services as well as highlighting the European, national and local context in which waste services operate. Following the adoption of this strategy, an options appraisal process will be undertaken (looking at global best practice as to how best we can deliver the services and changes required) and a number of action plans produced, detailing how the Council and its partners will deliver on the proposed objectives.

Seeking to change our behaviour and how we all think about waste and resources in the city is no small task, but, following its Green Capital year, it is one that Bristol will aspire to.

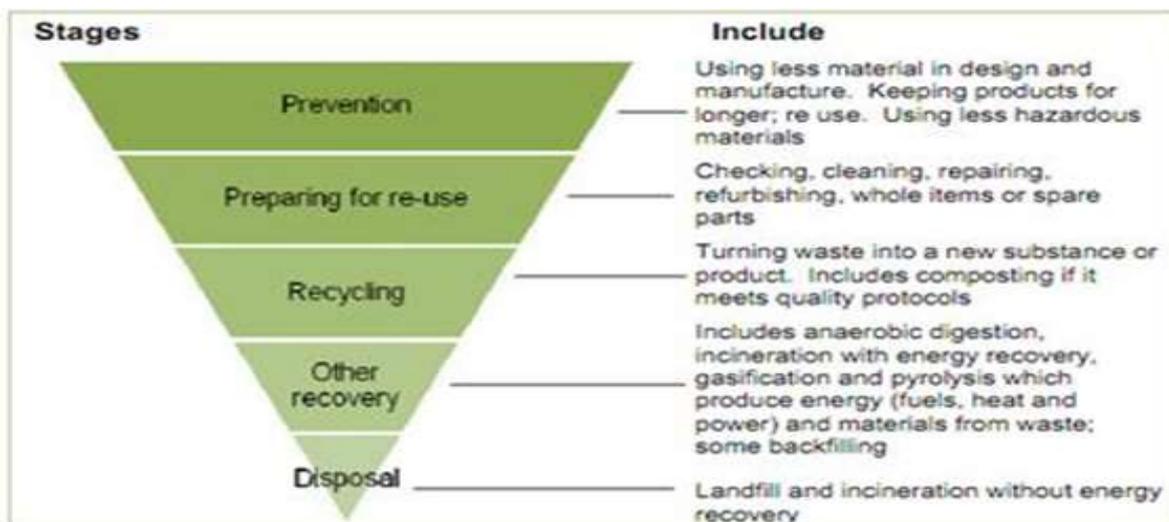
Towards a Zero Waste Bristol – Vision and Objectives

In recent decades, climate change has been increasingly identified as a major global threat. Good management of waste - preventing or minimising the amount of waste generated and maximising the repair, re-use and recycling of waste materials, are some of the most immediate things that we can do as individuals to contribute to a reduction in carbon emissions. Waste is both a global and local issue and communities need to become more responsible about the waste they generate. We all have a part to play - as individuals, employers or employees, governments, consumers and as parents.

Energy and resources are used when making the materials that we commonly throw away (packaging, food and drinks cans, plastic containers etc). Simply discarding these materials creates a loss both of the materials and of the energy embodied in them. It is far better to think of such materials as resources to be managed.

In future, we must prevent waste from being generated. Where we cannot prevent, we must reduce, repair, re-use, recycle and compost more. Any waste that cannot be reused, recycled or composted should be treated to recover any potential value, such as energy (although using waste as fuel is not carbon neutral). We must think of waste as being a resource from which as much value as possible should be recovered. Disposal should only ever be the last resort, as illustrated in the 'waste hierarchy' in Figure 1.

Figure 1: The Waste Hierarchy



Source: DEFRA, [Guidance on applying the Waste Hierarchy](#) (2011)

What does Bristol want to achieve?

Our long-term mission is to achieve a 'zero waste' Bristol, where we make the most efficient use of resources by minimising the city's demand on natural resources, preventing or minimising waste generation and maximising the repair, re-use, recycling and recovery of resources instead of treating them as waste.

Vision

We want Bristol to be a city where resource use is minimised, waste production is minimal and that repair and re-use is maximised. We want a city where there is a clean, green, safe and sustainable streetscene for residents and for visitors to Bristol.

A zero waste Bristol is one where:

- The City Council, local businesses and other organisations in the city recognise that waste is a valuable resource and will seek to maximise resource efficiency.
- The City Council, businesses and other organisations in the city will maximise waste prevention, waste reduction, re-use and recycling. The City Council and partners will actively promote and reinforce these principles to Bristol residents through information, education and, where necessary, through enforcement action.
- Where there is evidence of environmental crime, the City Council, working in collaboration with partner agencies with responsibility for environmental enforcement, will deal with the issue robustly and effectively to maintain a clean, safe and healthy environment for businesses, citizens and visitors.
- The City Council and partners will be sensitive to local needs and will provide services to help support Bristol in becoming the cleanest and greenest major city in the UK.

Key Objectives

In order to deliver the vision, a number of key objectives have also been identified. The City Council will:

Support the circular economy by:

- Leading and enabling behavioural change through a combination of measures that increase the opportunity and motivation to prevent, repair, reuse and recycle waste, with a particular emphasis on reducing food waste.
- Working in partnership to develop local markets and encourage the development of secondary material industries.
- Enabling the setting up of and support for local repair and reuse schemes, particularly those with added social benefits such as good quality job and training opportunities.
- Undertake a holistic review of household waste re-use and recycling centre provision across the city, taking into account population size, accessibility, how we can achieve maximum re-use from our centres, and how they can be funded more sustainably.
- Supporting local businesses and other organisations with a significant presence in the city to reduce, reuse, recycle, or recover energy from waste, and increase understanding of the actions government and businesses can take to develop increased producer responsibility.

Reduce carbon emissions and protect natural resources by:

- Reducing the 'carbon footprint' of waste management solutions and services wherever feasible and practicable (eg. by using electric vehicles where possible)
- Building flexibility into future waste contracts and energy contracts to facilitate, where possible, waste material to be provided to Bristol City Council's Energy

Company to generate local energy if and when required. However, in keeping with the waste hierarchy, other more environmentally sustainable options for waste treatment will always be considered first before committing to energy recovery.

- Managing waste in a manner which protects human health and the environment, minimizing:
 - risk to water, air, soil, flora and fauna;
 - nuisance;
 - adverse effects on the countryside or places of special landscape, townscape, archaeological and historic interest.

Provide an accessible, efficient, effective and value for money service by:

- Always considering the costs and benefits of each waste treatment and disposal option so that that the best environmental option is chosen which meets our financial requirements.
- Developing and procuring waste management and street scene services that are flexible, effective and affordable

Increase public understanding and engagement with waste and streetscene issues by:

- Educating the public, particularly children and young people, using publicity and direct education methods to increase understanding that waste is a resource and reinforce the importance of waste prevention, waste reduction, repair and reuse as well as recycling.
- Working with businesses and partners to promote and raise awareness of the positive impact that clean and green neighbourhoods can have on people's health and wellbeing and quality of life.
- Working with stakeholders to promote the social and economic benefits of waste prevention, reuse, repair and recycling.
- Enabling local groups to take action on waste issues in their own communities

Maintain and enhance Bristol's streets and neighbourhoods by:

- Working closely with our partners and other stakeholders to coordinate finite resources to ensure the most effective and efficient management of our streetscene and ensure adherence to the enforcement policy
- Enabling local residents, businesses, landlords, caretakers and community groups to take pride in their neighbourhoods and help the Council tackle environmental crime
- Using robust enforcement action where necessary to safeguard our neighbourhoods from environmental crime, with a particular emphasis on tackling fly-tipping and graffiti tagging.

Key Targets

The targets are informed by the European Commission's work on the circular economy. By recirculating materials through repair, re-use and recycling rather than disposing of them after use, the circular economy retains product and material value and reduces both the demand for new raw materials and the need for waste disposal, two activities with high carbon impacts.

The European Commission's Circular Economy Package has recently been announced (December 2015), and includes a common EU target for recycling 65% of municipal waste by 2030, a common EU target for recycling 75% of packaging waste by 2030 and a binding landfill target to reduce landfill to maximum of 10% of all waste by 2030.

Bristol is ambitious and so has set itself a number of challenging targets. Bristol aims to:

- Produce the lowest amount of residual household waste per person per year of any UK Core city and aims for a target of below 150 kg per person per year by 2025
- Send less than 5% of waste to landfill by 2030
- Recycle and prepare for re-use (including composting) 50% by 2020 and 70% by 2025.
- Reduce the amount of food waste going into residual waste (black bin) from almost 40% to 10% by 2025.
- Increase overall satisfaction with streetscene by 10% in Bristol neighbourhoods identified as having the most significant issues by 2018

Where are we now?

This section provides some background information on how Bristol has progressed since the last Waste strategy of 2009.

Bristol City Council is a Unitary Authority, which means that it is responsible for both the collection and disposal of household waste together with a wide range of street-scene related services. These are summarised below:

- Collections from households of refuse, recycling, kitchen food waste, garden waste, bulky waste and household clinical waste;
- Making arrangements for the disposal of collected waste; operation of the Council's waste transfer stations and Household Recycling Centres (HRCs);
- Waste collections from chargeable domestic customers such as schools, nurseries and nursing homes;
- The provision of Mini Recycling Centres for flats and Bring Banks (large recycling containers) provided in public areas such as supermarkets, car parks and community centres;
- Promotion of waste prevention, re-use and recycling;
- Cleansing of streets, pavements and open areas in public ownership.
- Removal of fly-tipped material, graffiti and fly-posting;
- Public campaigns to reduce littering, fly-tips and graffiti;
- Enforcement against environmental crimes and breaches of waste management legislation;
- Removal of abandoned vehicles;
- The provision, cleansing, attendance and maintenance of public toilets.

The strategic aims of the 2009 strategy were to increase services aimed at capturing materials for recycling and composting and to encourage behaviour change among Bristol residents through, for example, reducing the capacity for residual waste (ie. smaller bins). Among the developments that have taken place since 2009 are:

- Food waste and cardboard collections (first introduced in 2006) were rolled out to schools, halls of residence and flats in 2009.
- In 2009 a smaller residual waste bins policy was introduced (from 240 litre to 180 litre on a replacement only basis). The majority of residual waste bins were replaced by 180 litre smaller bins by 2012.
- Bristol has led the way in educating children and young people about the importance of sustainability and waste reduction. Since 2009/10 recycling has risen from 4% in the average Bristol school to around 45%.
- In 2010 communal bins for recycling and refuse were introduced in certain areas of the city to combat issues of limited off-street space for individual bins and/or issues with litter and fly-tipping.
- In 2010 a small network of 3-in-1 on-street recycling bins were introduced for key city centre and high footfall areas.

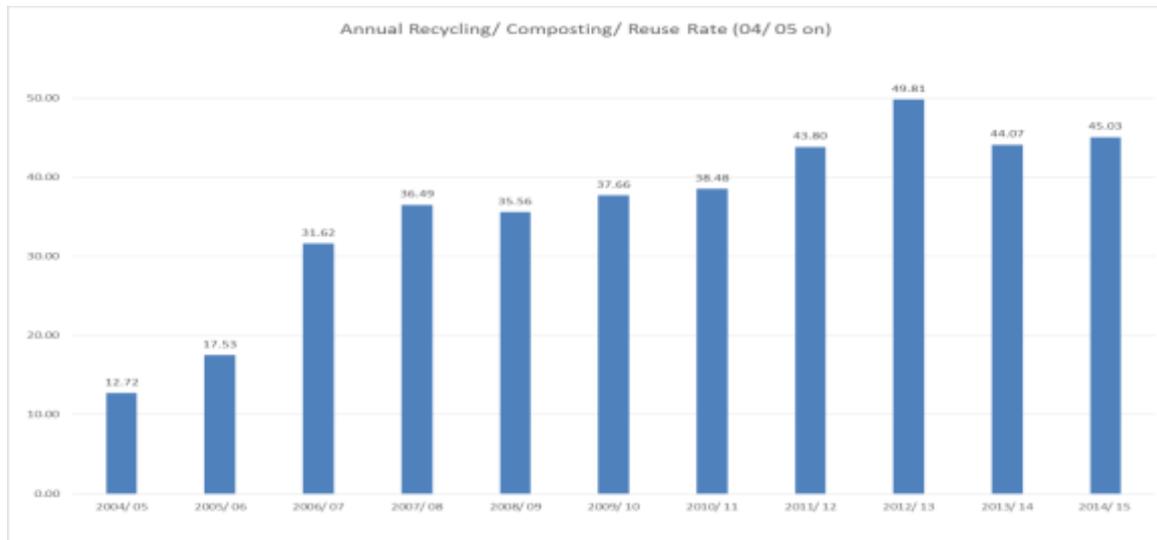
- Recycling of Tetra Paks (laminated drink and food cartons) was introduced in 2011
- Bristol led the way in plastic recycling - a mixed plastics kerbside collection service was piloted in 10% of the city in 2010 and implemented city-wide by 2012
- Charities and social enterprises in Bristol have played a valuable role in helping to engage residents, reduce the amount of waste disposed of and increasing the amount of waste diverted from landfill. Key local organisations include:
 - Bicycle recycling projects, e.g. Bike Back
 - IT reuse and recycling, e.g. Bristol Computer Recycling, Byteback , Computer Recycling and Computers For Life
 - Wood Recycling, e.g. Bristol Wood Recycling Project
 - Furniture reuse, e.g. Emmaus Bristol, Kingswood Furniture Project, Restore, SOFA Project, Space Trust
 - Second hand clothes and bric-a-brac raising money for charitable organisation, e.g. Sue Ryder, St. Peter's Hospice and many others.
 - Websites promoting re-use e.g. Bristol Freecycle and EcoJam
 - Children's Scrapstore: Takes commercial waste "scraps" to be reused by children, schools, etc. in art and other projects.
 - WEEE reuse and recycling, e.g. SOFA Project.
- The green/environmental business sector has continued to grow and develop within Bristol, e.g. Filwood Green Business Park
- A Re-Use Network was set up in 2015 by the Bristol Green Capital Partnership's Waste Action Group. A grassroots organisation, Bristol Re-Use seeks to promote and increase re-use of goods and materials, to encourage individuals, communities, businesses and organisations to join in and to develop new initiatives such as jumble trails, repair workshops and swap shops.

Recycling and Re-Use

Since 2004/05 Bristol's annual recycling/composting and re-use rate has increased significantly from 12.7% to 45% in 2014/15. The most notable change occurred between 2005/06 and 2006/07 when weekly food and cardboard waste kerbside collections and fortnightly collection for residual waste were introduced. Since then, progress has been more gradual. This is illustrated in Figure 2. The proposed European Commission target of recycling 65% of municipal waste by 2030 presents a significant challenge, particularly for a core city like Bristol. However, some Slovenian municipalities (Vrhnik and Borovnica for example) have managed to collect and recycle over 76 % of their waste. Slovenia did not even have any national targets for the separate collection of waste until 2001 and so can offer valuable best practice lessons in what can be achieved in a relatively short amount of time.

In order to promote significant future increases in recycling/composting rates, a review of Bristol’s waste collection arrangements will be considered as part of the options appraisal following this strategy refresh.

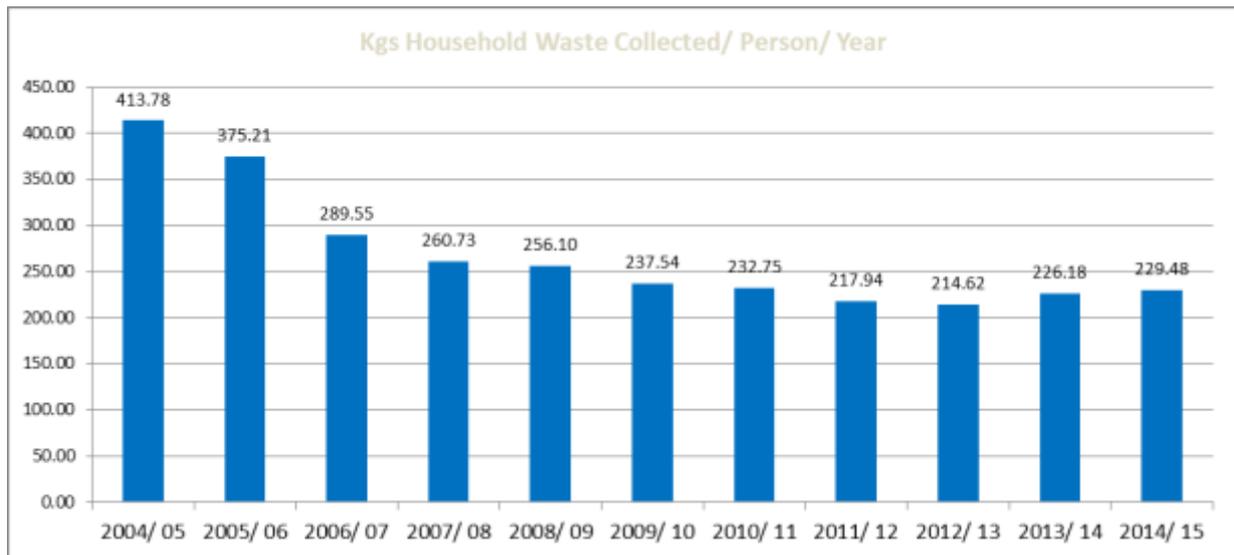
Figure 2: Recycling and Composting Performance (%) - 2004/05 to 2014/15



Waste Per Person

The average amount of residual waste, (waste that is not sent for recycling) generated by each Bristol resident per year also indicates the impact of the changes made to waste collection arrangements, showing a marked drop from 375 kilograms per person per year in 2005/06 to 289 kilograms in 2006/07. These figures, illustrated in Figure 3, have improved further since 2006/07, but progress has been gradual. In 2014/15 the average Bristol resident threw out around 229 kilograms of residual waste, which is not sustainable and future programmes will be targeted to reduce this volume. Part of this process will be to examine best practice from other parts of the UK and elsewhere. The Italian province of Treviso, for example, has managed to achieve levels of only 53kg of residual waste per inhabitant per year.

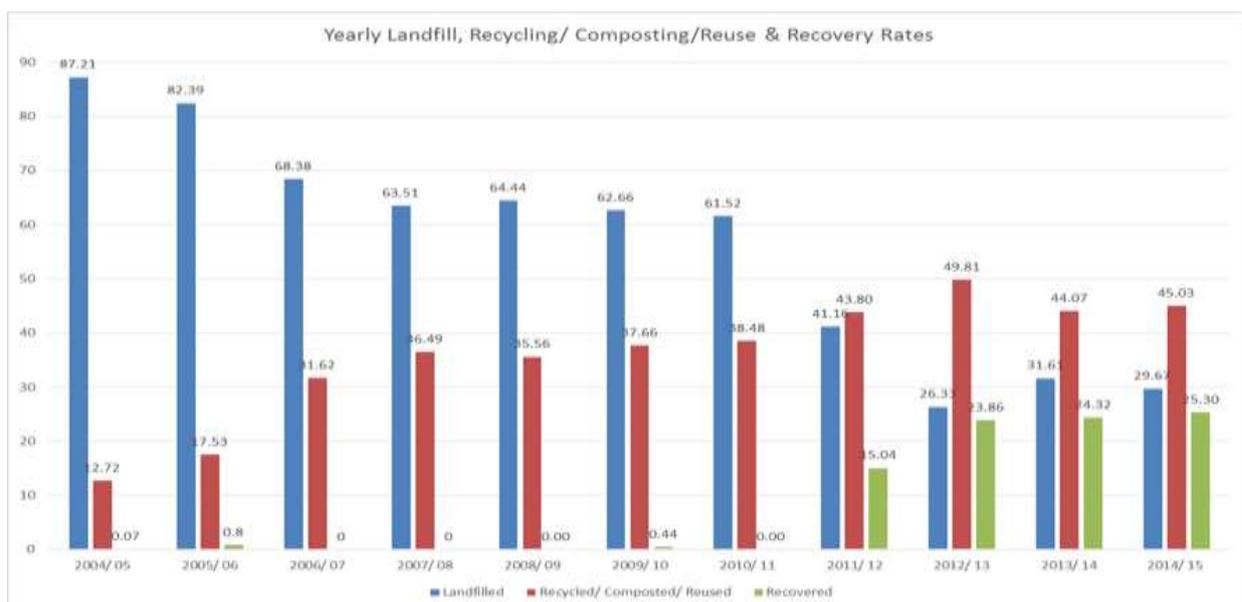
Figure 3: Kilograms of Residual Waste Per Person Per Year 2004/05 to 2014/15



Landfill and Energy Recovery

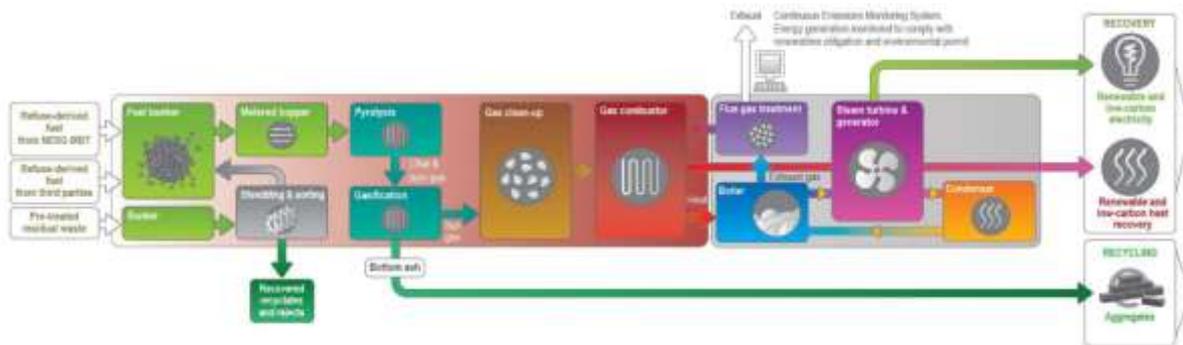
In terms of the amount of waste that Bristol sends to landfill, there has been significant progress. As seen in the Figure 4, in 2004/05 the amount of Bristol waste going to landfill was around 87%. This has dropped considerably over the decade and since 2009, there has been an approximate 50% reduction. In 2014/15, just under 30% of Bristol’s residual waste was going to landfill; equivalent to around 52,000 tonnes of Bristol’s waste. Bristol City Council views landfill only as a last resort option and has been exploring other methods of treating waste, such as energy recovery.

Figure 4: Annual landfill/Recycling and Composting Rates (%) - 2004/05 to 2014/15



The potential of recovering energy from waste has grown considerably since the opening of a Mechanical Biological Treatment (MBT) plant in Avonmouth in 2011. The Avonmouth facility produces a fuel from the waste which is then used to power a co-located energy facility that applies methods such as ‘gasification’ and ‘pyrolysis’ technologies. Figure 5 illustrates the process used at Avonmouth. Around 25% of Bristol’s waste is now converted to energy through these methods.

Figure 5: Schematic of Avonmouth Energy Facility



In June 2015 the City Council entered into a contract to ship Refuse Derived Fuel (RDF) (pre-treated and processed at Avonmouth) to Europe, where it will be recovered into energy to generate electricity and provide district heating. This will produce an estimated saving of around £250,000 per annum (based on maximum of 40,000 tonnes being sent) and reduce the amount of Bristol waste landfilled even further.

Another potential opportunity for increasing energy recovery from waste has been presented by the establishment of Bristol City Council’s Energy Company in 2015: Bristol Energy & Technology Services (Supply) Limited (BETS). The Council is the ultimate owner of BETS, through a wholly owned holding company (Bristol Holding Limited), and was established to offer Bristol residents the option of a greener and more affordable energy supply. This provides an alternative supplier of energy distribution for the citizens of Bristol but is not associated with the treatment and processing of waste to energy recovery.

Household Recycling Centres

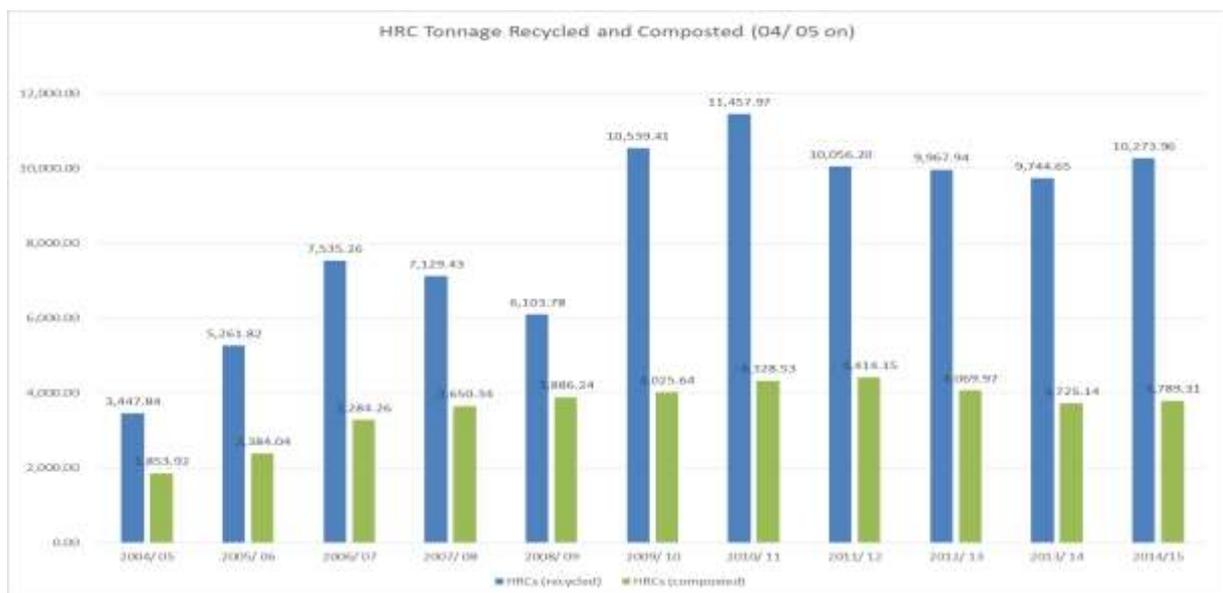
Household Recycling Centres (HRCs), sometimes referred to as Household Waste Recycling Centres (HWRCs), are provided by the Waste Disposal Authority (the City Council) as places where residents can dispose of their household waste and recycling.

Bristol currently has two Household Recycling Centres, one in St Philips (Foley Lane, off Days Road) and one in Avonmouth (Kings Weston Lane). Proposals for an additional HRC at Hartcliffe have recently been put on hold due to a shortfall in costs for the development of a third facility. As part of the options appraisal for this revised strategy, the Council will

consider whether current HRC capacity is sufficient to meet future demand, as well as considering different arrangements in terms of provision or delivery. The Council will take into account best practice from elsewhere. The Waste and Resource Action Programme (WRAP), for example, has produced a good practice guide on [Household Recycling Centres](#).

As illustrated in Figure 6, Bristol’s two Household Recycling Centres have seen a significant increase in materials for both recycling and composting since 2004/05, although recycled tonnages peaked in 2011 and have declined slightly since then.

Figure 6: HRC Recycling and Composting Performance (tonnages) - 2004/05 to 2014/15



The council will continue to collect a range of recyclable and compostable materials at HRCs. These facilities will be regularly reviewed and improvements to the layout and signage will be adopted as required. This will help to maximise recycling rates, particularly for the bulky household items commonly deposited at such sites.

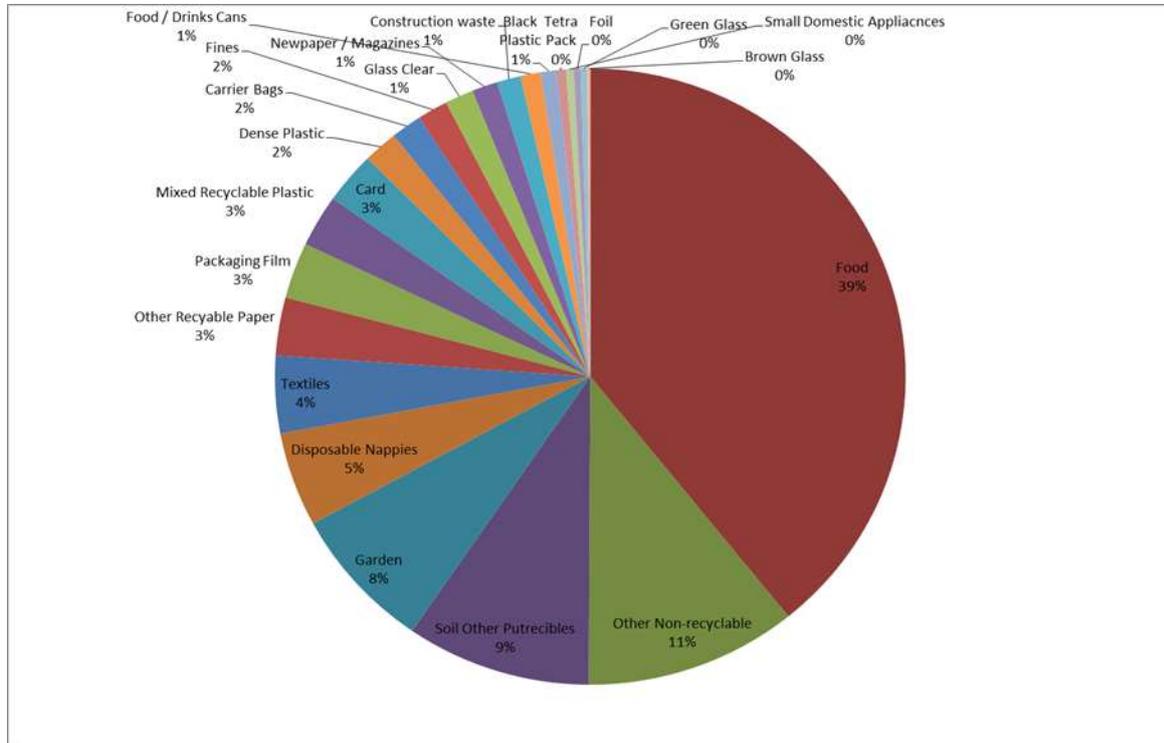
What goes in the average black bin?

Understanding the composition of a waste stream provides evidence to inform decision making with regards to developing waste prevention and recycling initiatives and so periodic samples of what the average Bristol resident puts in their black bin (the bin used for non-recyclable waste) are undertaken.

The last such sample was taken in 2014. As can be seen in Figure 7, most people seem to have adopted the recycling message with respect to cans, glass, cardboard, plastic and paper, with only relatively small amounts of these potentially recyclable materials ending up in the black bin. This is a positive development. Simply discarding these materials incurs costs. When recognised as valuable secondary materials and recycled however, they can generate income. To give one such example, if the approximate 5.7% of recyclable paper

that ends up in Bristol’s residual waste goes to landfill, it costs approximately £570,000. If all this paper was recycled, it would not only save £570,000 but also generate an income of around £285,000.

Figure 7: Composition of Bristol Residual Waste (%) - 2014



Yet, the sample also indicates that messages about using the brown food waste bins to compost food waste have obviously not been quite as successful. Bristol was the first UK city to provide a kerbside food waste collection service, yet despite the provision of brown food waste bins to Bristol households and a weekly collection system, food still constitutes the largest percentage (39%) of what was being thrown away in the average Bristol black bin in 2014.

The action plans and revised communications work that will follow this refreshed strategy will place a particular emphasis on tackling food waste. There is a clear case to be made for reducing food waste and re-examining any educational/promotional messages highlighting the issue. While composting food waste via the brown bin scheme is certainly preferable to it ending up in the black bin, in terms of minimising the impact on the local environment, preventing food being wasted in the first place is by far the best option. Work on this issue will be co-ordinated with other plans and actions focused on reducing food waste, such as the work being undertaken as part of the Good Food Plan for Bristol and the priority to ‘achieve a healthier, more sustainable, more resilient food system for the city to benefit the local economy and the environment’ outlined in the Bristol Health and Wellbeing Strategy.

Contract and Infrastructure Developments

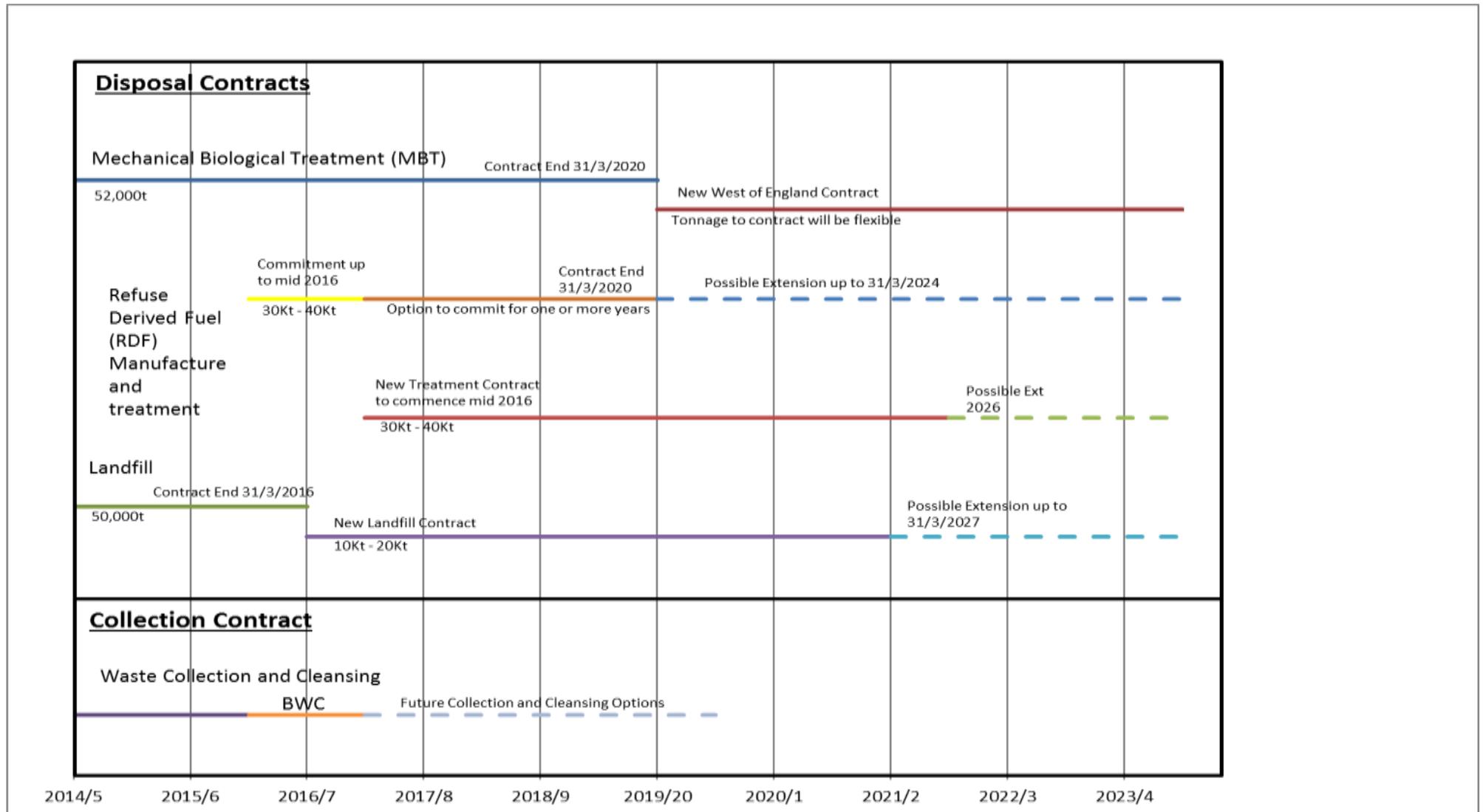
Bristol negotiated a new contract for waste collection, street cleansing and winter maintenance in November 2011. The contract was due to run for seven years, however in

August 2015 the council and the contractor mutually agreed to terminate the contract early. The council saw this as presenting a great chance to establish a wholly owned waste company, allowing greater scope to develop the service and explore future opportunities. Bristol Waste Company Limited (BWC) was incorporated to become a subsidiary of Bristol Holding Limited alongside BETS. All employees engaged on the waste collection contract and vehicles used by the previous contractor were transferred to BWC in August 2015. This current arrangement is for two years, while the Council considers the best long-term service model.

All existing Council contracts for waste collection and disposal and their current end-dates are illustrated in Figure 8.

The council's position is that, in priority order, it needs to prevent, reduce, reuse and recycle waste. Once all of these options have been exhausted, and waste has been reduced as much as possible, what waste is left will then need to be treated/disposed of.

Figure 8: Bristol Waste Contracts



The Mechanical Biological Treatment (MBT) plant located in Avonmouth, opened in 2011. The MBT plant has a capacity of 250,000 tonnes of residual waste per annum. Over half of Bristol's waste (some 53,600 tonnes) is treated at the Avonmouth MBT facilities.

There are no new residual waste treatment facilities currently in development by the West of England authorities. However, several facilities are operational or being developed within the West of England or reasonably close to it. Key facilities are:

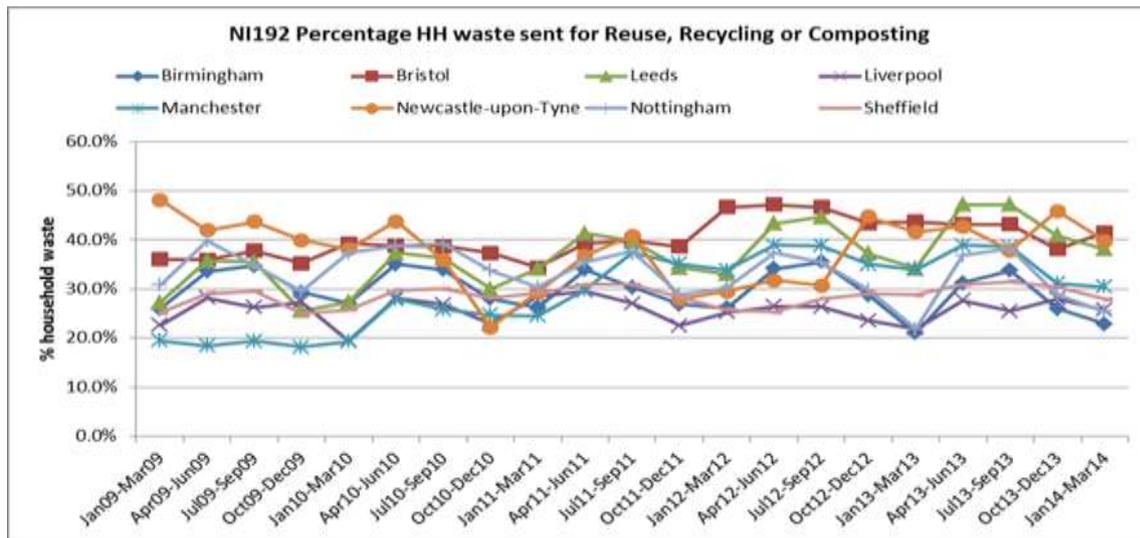
- Severnside Energy Recovery Centre (South Gloucestershire – expected 2016. Capacity 400,000 tonnes – key contract is with West London Waste Authority)
- Javelin Park Incinerator (Gloucestershire – expected 2018. Capacity 190,000 tonnes – key contract is with Gloucestershire County Council)
- Trident Park Energy Recovery Centre (Cardiff)- not permitted to take waste from outside South East Wales. Capacity 350,000 tonnes – key contract is with five authorities in South Wales)
- Exeter Energy from Waste Facility (Exeter, operational. Capacity 60,000 tonnes – key contract is with Devon County Council)
- Cornwall Energy Recovery Facility (St Austell, Cornwall – expected 2015. Capacity 240,000 tonnes – key contract is with Cornwall Council)
- Northacre Resource Recovery Centre (Westbury, Wiltshire, operational. Capacity 60,000 – key contract is with Wiltshire County Council)
- Refuse Derived Fuel (RDF) baling and export facility (Avonmouth, operational. Capacity 60,000 tonnes – key contracts are with North Somerset Council and Bristol City Council)
- There is planning permission for a 500,000 tonnes per annum Energy Recovery Facility (ERF) facility at Avonmouth. This facility is due to be operational by April 2020.

Comparisons with other Cities

As the largest urban area in the South West, Bristol is a member of the core cities group, which is comprised of the eight largest cities in England outside of London. More recently, Cardiff (Wales) and Glasgow (Scotland) have also joined the core cities group. Comparison's on relative performance are usually undertaken with the core cities, as they all face similar issues in terms of population size and housing density.

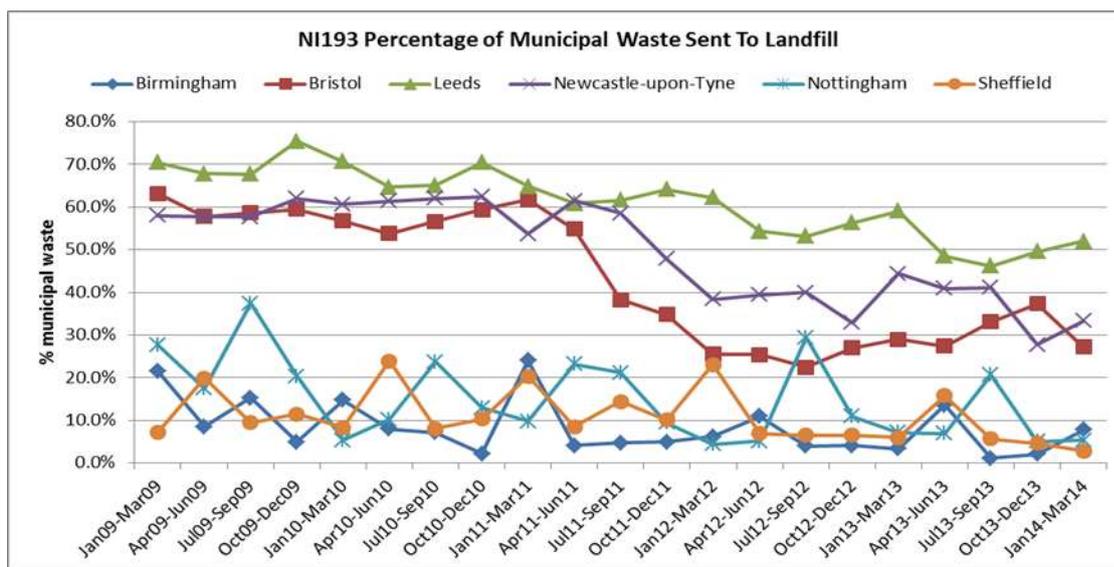
Some comparative data is presented in Figures 9 and 10. Although rates for re-use, recycling and composting have declined since a highpoint in 2012, Bristol has still performed better than many other core cities between 2009 and early 2014.

Figure 9: English Core Cities Comparison Recycling Rates (%) 2009 - early 2014



With respect to the percentage of municipal waste sent to landfill, Bristol had an average performance compared to a number of other core cities between 2009 and early 2014, performing generally better than Leeds and Newcastle, but not as well as Birmingham, Nottingham or Sheffield. However, these cities all have access to some form of energy recovery facility (ERF), which burns residual waste to produce electricity or both electricity and heat (in the case of Sheffield). Bristol’s recent decision to process residual waste into a Refuse Derived Fuel (RDF) at Avonmouth to be shipped to Europe to generate electricity and provide district heating through energy recovery will see the amount of waste going to landfill drop, on a phased basis, to ultimately similar levels.

Figure 10: English Core Cities Comparison (where data available) on Municipal Waste Sent to Landfill (%) 2009 - early 2014



Public Perception of Services

Bristol is fortunate in that, for many years an annual Quality of Life (QOL) survey has been undertaken, which provides local residents with an opportunity to voice their opinions about issues affecting the city. The results are used by the council, health service and other public sector partners to help plan local services, track change and improve the quality of life in Bristol. The survey uses a mix of online and paper based survey methods, and is sent to around 20,000 demographically representative Bristol households each year.

The latest results from 2014 indicate that 79.1% of respondents are satisfied with the weekly recycling service and 71.7% satisfied with general household waste collection. However, public perception of some other aspects of the range of services offered is not so positive. The 2014 results indicate that, despite some progress made from the previous year, a large proportion of those who responded to the survey are still unhappy with the amount of street litter in their communities (Figure 11). Similarly, although fewer respondents to the survey in 2014 felt that dog fouling was a problem in their local area compared to the previous year, the overall level of dissatisfaction remains high, as indicated in Figure 12.

Figure 11: Percentage of QOL respondents who say that street litter is a problem

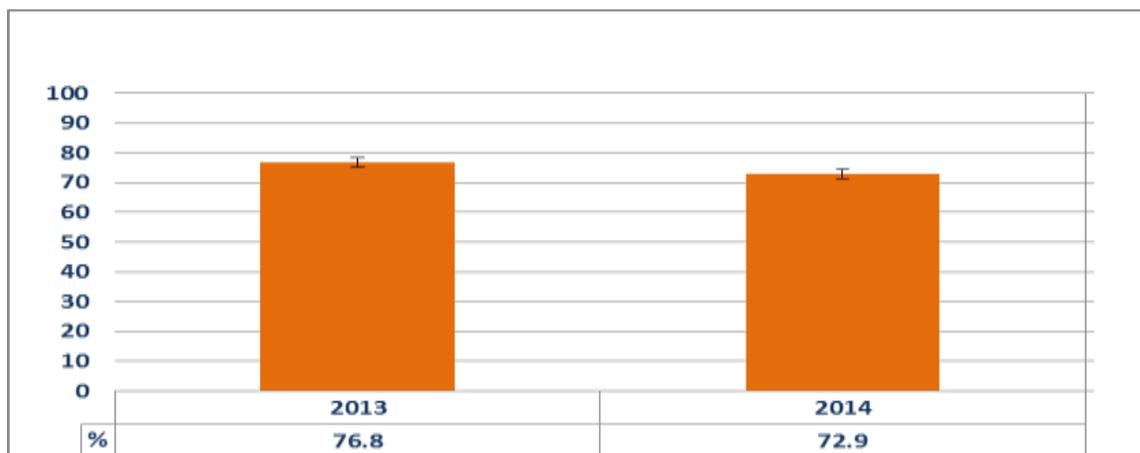
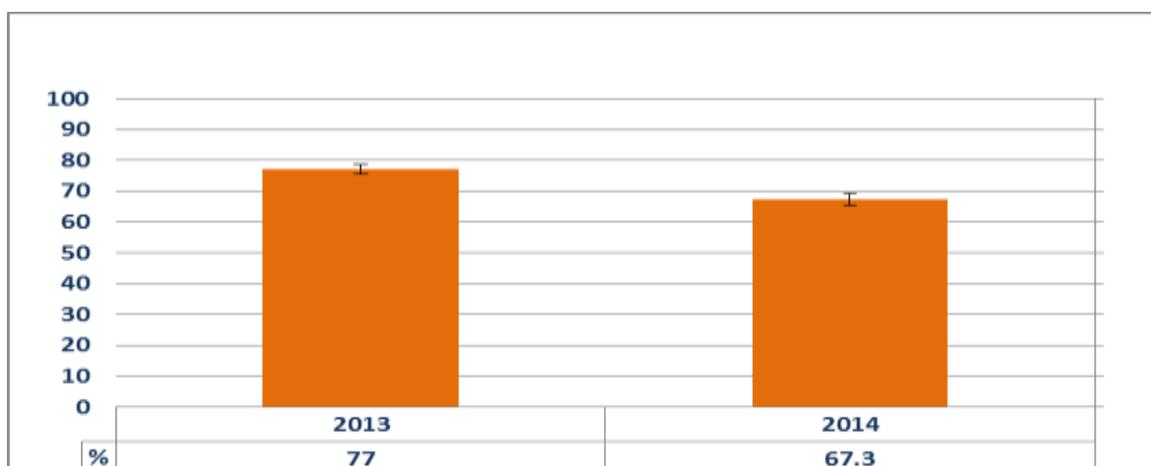
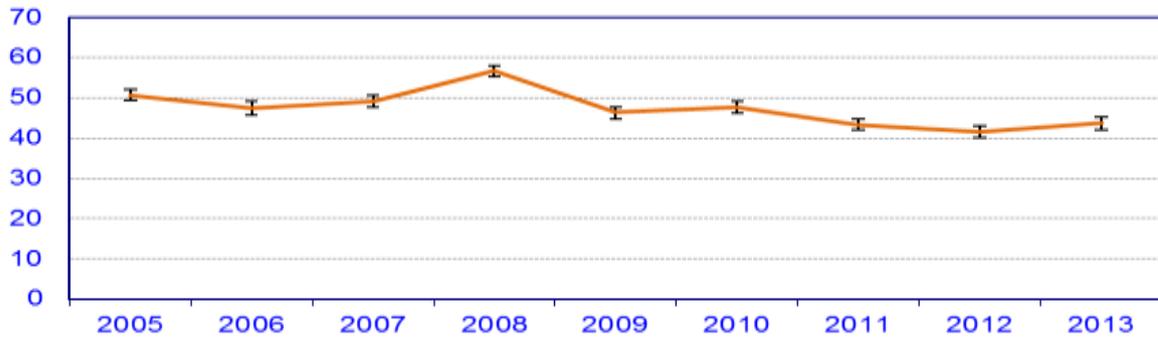


Figure 12: Percentage of QOL respondents who feel that dog fouling is a problem in their local area



The survey questions do change over time, and the same questions are not always asked each consecutive year. Where survey questions have been asked for a number of years, we can identify longer term trends. Figure 13 shows for example that the number of people who identified graffiti as a problem in their local area declined slightly between 2005 and 2013, although it remained an issue for around 45% of respondents.

Figure 13: Percentage of QOL respondents who say graffiti is a problem



Local Context

Financial Context

Local government is currently facing unprecedented levels of cuts to all service areas. Over three years to 2017, Bristol City Council will see a budget reduction of over £80m, a quarter of its overall budget. Across the country, local authorities have seen budget reductions of around 40% since 2010.

On November 25th 2015 Central Government announced its Spending Review and Autumn Statement, which details the Government's spending plans for the next five years. Core central government funding to local government in the form of revenue support grants will decrease by 56%, but this will be offset by other changes to local funding, including the ability to retain local business rates and 100% of receipts from any properties that local authorities may sell. As a result of these changes, the overall funding to local authorities is predicted to fall by a further 6.7% during the spending review period (up to 2019/20).

In brief, this substantial funding challenge will almost certainly continue throughout the term of this strategy and the primary driver for the waste services to be arranged will therefore be to achieve the optimum use of scarce financial resources.

Achieving value for money usually means buying the product or service with the lowest whole-life costs that is 'fit for purpose' and meets the specification. Legislation and taxation policy is increasingly incentivising the diversion of waste for treatment as a resource; whether through materials recycling or energy generation. Achieving value for money is therefore largely consistent with the other objectives described in this strategy but will remain the primary measure against which future procurement decisions will be determined.

Landfill Tax

The 2010 government Budget made the short term status of Landfill Tax more certain by setting in place a rise of £8 per tonne a year from 2010/11 to 2014/15, culminating in a tax of £80 per tonne and rising by inflation thereafter. It is a cost that the Council wants to reduce as much as possible. As the costs of landfill tax rise and landfill space reduces, the landfill gate fees will continue to rise. Together they are making landfill an increasingly expensive waste management option. It is also the least favourable option in environmental terms, and one the Council needs to avoid unless there is no alternative.

Demographic Change

Even though financial resources have been diminishing since the last waste strategy in 2009, the pressure on services has been increasing. Bristol currently has a population of approximately 442,500, living in over 190,000 residential properties. Latest residential property totals for the city in 2015 are 69,341 flats and 125,741 houses.

Projected future housing delivery is detailed in the City Council's Local Plan Core Strategy. The Local Plan outlines the delivery of a minimum of 26,400 new homes over the period 2006-26, but envisages that 30,600 new homes will be provided.

The population of the Bristol Local Authority area is estimated to have increased by 46,700 since 2004, an increase of 11.8%. This compares to an England and Wales increase of 8% over the same period. The growth in population includes an additional 10,000 students (since 2001) living in Bristol during term time. Engaging effectively with a transient student population over waste issues can be a challenge, and this revised strategy will look at measures to collaborate further with Bristol's two Universities to tackle this issue.

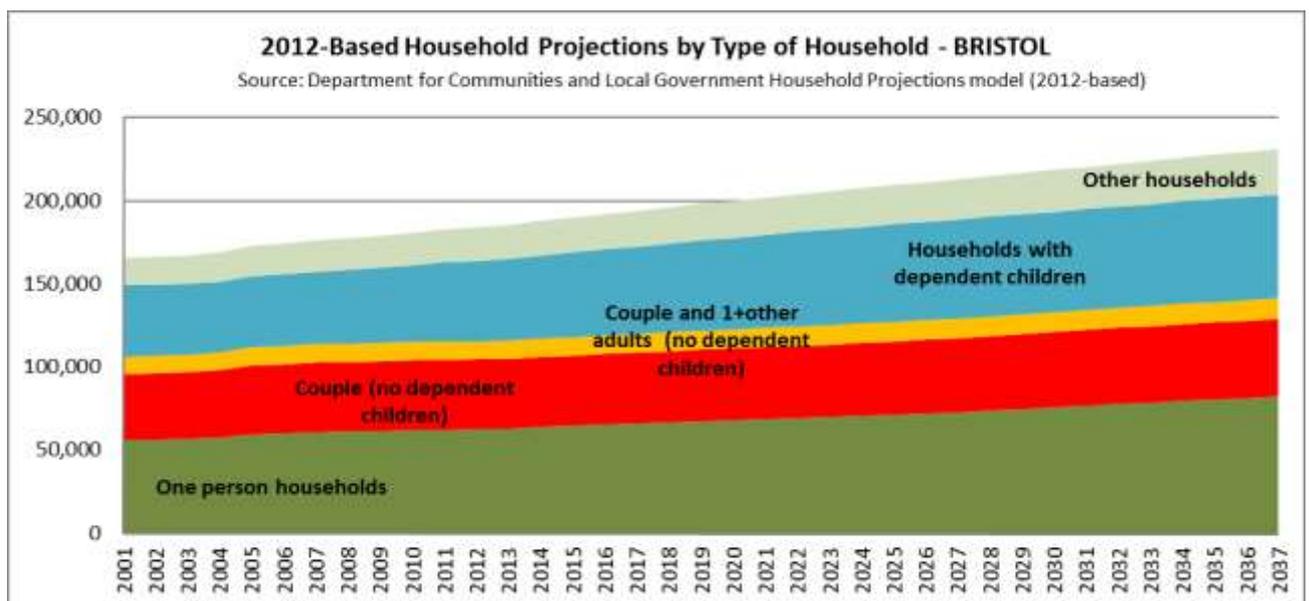
The largest ward in Bristol is Lawrence Hill with an estimated usually resident population of 20,100, the second largest ward is Cabot with 17,900 and the third largest ward is Ashley with 16,700. Lawrence Hill has more than twice as many residents as Stoke Bishop which is the smallest ward with 9,400.

The age profile within each ward also varies significantly. The highest numbers of children are found in the wards with high levels of social renting including Lawrence Hill (5,000), Filwood (3,400), Hillfields (3,200), Ashley (3,200) and Easton (3,100).

The wards with the lowest numbers of children are all in areas in the inner west of Bristol including Clifton East, Cotham, Cabot and Clifton. These wards have the highest proportions of people of working age (16-64 years), including a large number of students, as well as low proportions of people aged 65 and over.

On the basis of recent demographic trends, the number of households is predicted to rise by approximately 10,000 (5%) by 2020. Figure 14 illustrates household projections by household type for Bristol up until 2037. These changes in population will increase the overall amount of household waste produced and place additional pressure on existing services, particularly in wards with a high resident population. Moreover, these additional service pressures will almost certainly have to be met with no additional budget.

Figure 14: Department for Communities and Local Government: Bristol Household Projections 2012



Local Community Involvement in Waste and Resource Management

Bristol is fortunate in having a wide range of local community organisations and structures that are already involved in waste and resource management activities which can provide a firm basis for further partnership working going forward. Bristol Re-Use, set up in 2015 by the Bristol Green Capital Partnership's Waste Action Group, has brought together a network of Bristol-based Re-Use organisations, such as The Bristol Wood Recycling Project, Children's Scrapstore, SOFA Project and Bristol Textiles Recycling Ltd. The Re-Use network aims to promote and increase re-use of goods and materials and encourage individuals, communities, businesses and organisations to develop new initiatives such as jumble trails, repair workshops and swap shops. The remit of the Re-Use network covers a broad range of material streams including furniture, textiles, wood and electrical equipment and can offer tool kits to local community groups to develop their own re-use projects and processes.

Many of those involved in Bristol's 14 Neighbourhood Partnerships are also actively engaged in tackling waste and streetscene issues in their local area through, for example, running campaigns and organising clean-ups. A number of Neighbourhood Partnerships also have what are known as 'Street Champions' who keep an eye on their local area reporting issues of fly-tipping, graffiti and other environmental and community safety concerns to ensure they are dealt with quickly.

This refreshed strategy will also explore the opportunities for engaging with Bristol based organisations and retailers to improve resource efficiency and reduce waste. Go Green, for example, is a local initiative that was launched to coincide with Bristol's year as European Green Capital. Go Green supports businesses, charities and organisations of all shapes and sizes to work towards a more sustainable future. The City Council has also worked with local businesses, business advisors and traders' groups to produce a Business Start-up & Development Toolkit which offers a range of advice and guidance to new businesses in the city, including ensuring that they are aware of their obligations with regard to waste and resource management and highlighting the cost-effectiveness of environmentally-friendly business activity.

Since 2004, businesses in the Bristol and Bath area have also been able to use the Freight Consolidation Service. The Freight Consolidation service is a partnership between courier service DHL and Bristol and Bath and North East Somerset Councils. Using a small number of electric vehicles instead of numerous diesel trucks helps to free up busy roads and contribute towards improved air quality. The service also includes removing excess packaging for recycling.

There are also national initiatives that can be used to raise awareness of waste and resource management issues. Courtauld 2025 is an ambitious 10-year voluntary agreement that brings together a broad range of organisations involved in the food system to make food and drink production and consumption more sustainable. Keep Britain Tidy has a Litter Prevention Commitment. The Commitment asks businesses to consider cleanup costs, product and packaging design and recycling promotion, as well as supporting anti-litter campaigns and wider social responsibility and the environment.

Legislative and Policy Drivers

European Legislation and Policy

Circular Economy (CE) Package

On the 2nd of December 2015, the European Commission presented its new Circular Economy Package. Key elements of the proposals include:

- A common EU target for recycling 65% of municipal waste by 2030;
- A common EU target for recycling 75% of packaging waste by 2030;
- A binding landfill target to reduce landfill to maximum of 10% of all waste by 2030;
- A ban on landfilling of separately collected waste;
- Promotion of economic instruments to discourage landfilling;
- Simplified and improved definitions and harmonised calculation methods for recycling rates throughout the EU;
- Concrete measures to promote re-use and stimulate industrial symbiosis - turning one industry's by-product into another industry's raw material;
- Economic incentives for producers to put greener products on the market and support recovery and recycling schemes (eg for packaging, batteries, electric and electronic equipment, vehicles).

The aim of the package is to stimulate Europe's transition towards a circular economy in order to boost global competitiveness, foster sustainable economic growth and generate new jobs. To help facilitate this transition the Commission accompanied the CE Package with an Action Plan on the Circular Economy which sets out measures to 'close the loop' and tackle all phases in the lifecycle of a product, from manufacture to disposal. The plan also includes a number of actions that the Commission said will target market barriers in specific sectors or material streams, such as plastics, food waste, critical raw materials, construction and demolition, biomass and bio-based products, as well as measures in areas such as innovation and investment.

This refreshed strategy hopes to develop aspects of the circular economy within Bristol, in particular, activities such as repair and re-use. Everyone benefits from an increase in re-use. It can provide a saving to consumers, who can avoid buying new products. It also saves taxpayers money by avoiding the costs associated with the disposal of products – which can cost more than £100 per tonne¹. Finally, consumers can benefit from the resale value of reused products. In 2014, the [Local Government Association](#) (LGA) estimated that there was over £400 million of untapped value from household waste material; value that can be reclaimed by increasing the amount we reuse.

¹ Based on landfill gate fees from WRAP 2013 Gate Fees report including the 2014/15 landfill tax.

The European Waste Framework Directive (WFD)

The European Waste Framework Directive (2008/98/EC) provides the overarching legislative framework governing for the collection, transport, recovery and disposal of waste across Europe. It was originally passed into law in 2006, and into the revised Waste Framework Directive (rWFD) in 2008. The rWFD requires all member states to:

- Take the necessary measures to ensure waste is recovered or disposed of without endangering human health or causing harm to the environment;
- Take appropriate measures to encourage firstly, the prevention or reduction of waste production and its harmfulness and secondly the recovery of waste by means of recycling, reuse or reclamation or any other process with a view to extracting secondary raw materials, or the use of waste as a source of energy.

The European Waste Framework Directive introduced the concept of the waste hierarchy, illustrated in Figure 1. The hierarchy ranks waste management options according to what is best for the environment. Organisations that collect and manage waste must take all reasonable measures to apply the hierarchy as a priority order to the waste they handle. This Strategy is guided by the principles of the Waste Hierarchy and aims to minimise waste generation and view waste materials as a resource.

England and Wales Policy and Legislation

The European Waste Framework Directive was enacted in UK law through the Waste (England and Wales) Regulations 2011 and includes the following key drivers for local authorities:

- An emphasis on following the waste hierarchy for all decisions on waste policy, infrastructure and management. This is a key waste management principle to encourage sustainable waste management. Under the regulations, departures from the hierarchy are allowed *‘so as to achieve the best overall environmental outcome where this is justified by lifecycle thinking on the overall impacts of the generation and management of waste’*.
- From 1st January 2015, all waste collectors must collect paper, metals, plastics and glass separately, where doing so is:
 - “necessary to ensure that waste undergoes recovery operations in accordance with Articles 4 and 13 of the Waste Framework Directive and to facilitate or improve recovery” (the ‘Necessity Test’); and
 - “technically, environmentally and economically practicable” (the ‘Practicability’ or ‘TEEP Test’).

These rules do not just apply to household waste – the same requirements affect all kinds of collections of recyclable material, including that collected from businesses, received at Household Recycling Centres (HRCs), or swept up from the streets.

Other relevant legislation, policies and plans are summarised in Table 1 below:

Table 1: Relevant Legislation for Waste, Streetscene and Resource Management²

Legislation/Plan/Policy	Description
European	
The Landfill Directive (1999/31/EC)	<p>The Landfill Directive (1999/31/EC) aims to prevent or reduce as far as possible negative effects of landfilling waste. Within the Landfill Directive the UK has three targets to meet, measured as a percentage of the tonnage of Biodegradable Municipal Waste (BMW) generated in 1995 ('the 1995 baseline'). These require the tonnage of BMW to landfill to be:</p> <ul style="list-style-type: none"> • No greater than 75% of the 1995 baseline by 2010 • No greater than 50% of the 1995 baseline by 2013 • No greater than 35% of the 1995 baseline by 2020
England and Wales	
Materials Recovery Facility (MRF) Regulations 2014	Aimed at improving the quality of recyclate (the materials in refuse that can be recycled) that is collected commingled and then separated out again at a Materials Recovery Facility (MRF) so that it can be recycled. The regulations state that all MRFs processing more than 1,000 tonnes of recyclate each year are required to measure and report on the quality of the input, output and residual waste streams every three months.
Anti-Social Behaviour, Crime and Policing Act 2014	The Act replaces the various measures previously available to tackle antisocial behaviour within the Anti-Social Behaviour Act 2003 with a new set of powers, intended to provide a simpler and more streamlined framework.
Public Services (Social Value) Act 2013	Requires people who commission public services to think about how they can also secure wider social, economic and environmental benefits. The Act is a tool to help commissioners get more value for money out of procurement and to design better services.
Waste Management Plan for England 2013	Brings together existing plans and policies to ensure waste is treated in line with the waste hierarchy. The Waste Management Plan for England does not set new targets but uses those set out in the revised Waste Framework Directive (rWFD)
Waste Prevention Programme for England 2013	Sets out the government's view of the key roles and actions which should be taken to move towards a more resource efficient economy. It also highlights actions

² This is an illustrative list and is not exhaustive of all relevant legislation.

	businesses, the wider public sector, the civil society and consumers can take to benefit from preventing waste.
The Controlled Waste (England and Wales) Regulations 2012	Allows waste disposal authorities to charge for disposal from premises that were previously only able to be charged for collection of waste. It includes: Camp sites, Self-catering accommodation, Charities (on waste that originated from non-domestic property – not charity shops), Education establishments (if not already in receipt of free disposal), Hospitals or nursing homes (not including those providing residential accommodation), Penal institutions.
Government Review of Waste Policy 2011	Detailed a number of commitments and actions that the Government would seek to address over the coming years and considered the rWFD. It revoked the Landfill Allowance Trading Scheme (LATS) from April 2014 and made a range of commitments to move towards a 'zero waste' economy. It prioritised efforts to manage waste in line with the waste hierarchy and reduce the carbon impact of waste.
Clean Neighbourhoods and Environment Act 2005	Raised the profile of local environmental crime and introduced new powers for councils to quickly tackle a range of environmental offences. This included the power to issue fixed penalty notices, immediately remove abandoned vehicles and impound vehicles involved in fly-tipping. The Act also gives councils more powers over waste services and recycling.
Environmental Protection Act 1990	Deals with the protection of the environment, specifying offences and responsibilities for clearing litter and waste and dealing with nuisances. Local authorities granted statutory powers to initiate prosecutions against litter and waste (enviro-crime) offenders.
Control of Pollution (Amendment) Act 1989	Makes it a criminal offence for a person who is not a registered carrier to transport controlled waste to or from any place in Great Britain. It also provides for the seizure and disposal of vehicles used for illegal waste disposal.

Local Policy Drivers

West of England Waste Management

The West of England local authorities (Bath and North East Somerset, Bristol, North Somerset and South Gloucestershire – 'the Partnership') have developed a Joint Residual Municipal Waste Management Strategy (Joint Waste Strategy - JWS) to define the strategic framework within which the councils will manage residual waste. In addition, there is also a West of England Joint Waste Core Strategy (JWCS), which sets out the planning framework

for sustainable waste management in the West of England up to 2026. In simple terms, the JWS suggests technologies and methods to manage waste in the West of England area (ie. maximising recycling and reuse, promoting waste minimisation and proposing how the remaining ‘residual’ municipal waste that cannot be recycled should then be dealt with). The JWCS, on the other hand, focuses more on identifying sites or locations for new waste facilities. The key targets and objectives for the West of England are as follows:

Table 2: West of England Key Targets and Objectives

Key Target for Partnership
<ul style="list-style-type: none"> Household waste recycling at 50% by 2020
Targets over which the Partnership has less control
<ul style="list-style-type: none"> Construction and demolition waste at 70% material recovery by weight by 2020 Annual greenhouse gas emissions – reduction from 1990 levels of 34% by 2020, 80% by 2050
Key Objectives for Partnership
<ul style="list-style-type: none"> Prioritise efforts to manage waste in line with the waste hierarchy. Provide convenient recycling service for household and commercial customers. Provide local leadership to plan and invest in new infrastructure. Secure the investment in infrastructure needed to divert waste from landfill and for the management of hazardous waste. Get the most environmental benefit from that investment, through increased recycling of resources and recovery of energy from residual waste using a mix of technologies. Meet the Landfill Directive diversion targets for biodegradable municipal waste in 2020.
Objectives over which the Partnership has less control
<ul style="list-style-type: none"> Moving towards a more resource efficient circular economy to boost economic growth whilst continuing to improve the environment.

Links with other City Council Policies and Strategies

Corporate Plan 2014-17

The Waste and Resource Management Strategy is linked to the City Council’s wider strategic priorities, which are listed in the Council’s Corporate Plan. The Corporate Plan highlights six priority areas for Bristol:

- Healthy and Caring Bristol

- Keep Bristol Working and Learning
- Keep Bristol Moving
- Building Successful Places
- Global Green Capital
- Vibrant Bristol

These priorities are underpinned by three cross-cutting themes:

- Addressing Inequalities of health, wealth and opportunity in the city.
- Active Citizens who play an active role in the life of the city.
- Empowered City which is in control of its own future and where governance fits the mayoral model.

The Waste and Resource Management Strategy has clear links to the Global Green Capital priority. This priority has broader aims than just focusing on specific activities planned for the city in its European Green Capital year of 2015. It also looks to the future, with ambitions to further develop the green economy within the city. Waste re-use and remanufacturing can make a significant contribution to this goal. The Green Alliance, for example, has estimated that keeping just five materials (Wood, Textiles, Electronics, Food, and Plastics) out of landfill each year could create 47,500 jobs across the UK and also save emissions, equivalent to that generated by 2.7m homes.

There are also links to a number of other priorities in the Corporate Plan, such as ‘Healthy and Caring’ and ‘Building Successful Places’. In recent years there has been a growing acknowledgement that the quality of the built environment and its sustainability (both of which are impacted on by waste and streetscene services) are key factors in contributing both to individual health and wellbeing and also to more general perceptions of the city, which can in turn influence whether or not people (and businesses) choose to relocate here.

The cross-cutting theme of ‘active citizenship’ is also relevant to waste and streetscene services. The local authority provides the infrastructure to ensure a clean and litter free environment, as well as information and advice. Ultimately, the local authority can also take enforcement action against those who continue to offend. However, it is people who create and discard waste, whether at home or in the workplace. Keeping the local environment free of refuse, litter and graffiti is as dependent on the personal responsibility of Bristol residents as it is on the enforcement of regulations. This refreshed strategy will see an increased emphasis on collective responsibility for waste minimisation and clean neighbourhoods.

Our Resilient Future: A Framework for Climate and Energy Security 2015

The Corporate Plan includes an objective to reduce Bristol’s Carbon emissions by 40% by 2020 (from a 2005 baseline) and accelerate the pace of change towards a low carbon future that will make Bristol a more sustainable, healthier, greener city. The Climate and Energy Security Framework 2015 document aims to provide a more tangible long-term pathway towards the substantial decarbonisation of Bristol and commits the Council to new targets

for its own corporate energy efficiency and CO2 emissions having nearly achieved its 2020 target five years early.

Treating waste as a resource and seeking to replace energy from fossil fuels with energy produced as by-product of resource use ie. from anaerobic digestion, biomass or waste heat can certainly contribute to the overall aims of the Framework. The Framework also supports the implementation of the Good Food Plan, through exploring ways that City Council activity can protect and promote local food production in Bristol and the West of England sub-region. Waste and Streetscene services can assist with the implementation of these goals, particularly around the issue of reducing food waste. For example, by encouraging local businesses involved in the food system to sign up to Courtauld 2025.

Bristol's Health and Wellbeing Strategy

The Health and Wellbeing Strategy (2013) contains a priority to 'Achieve a healthier, more sustainable, more resilient food system for the city to benefit the local economy and the environment'.

Our highly industrialised food system is unsustainable. It uses nine calories of fossil fuel to produce each calorie of food, and contributes to the degradation of soil, forests, water supplies and essential resources such as phosphates. The food sector is the second biggest source of local employment after health and social care, accounting for one in every ten jobs in Bristol. This means that a shift to a more sustainable and healthier food system will also benefit local employment.

One of the key aims that Bristol's Health and Wellbeing Board wish to take forward with respect to this priority is:

- Helping to minimise food waste by encouraging the composting of inedible food, and the redistribution of good food that would otherwise be sent to a landfill.

The aims of this refreshed Waste and Resource Management Strategy, with its emphasis on reducing food waste, can certainly contribute to this goal.

Statement of Licensing Policy

Bristol is a major regional entertainment centre and regularly attracts in excess of 30,000 people into its city centre at weekends. The main entertainment areas are located within Harbourside, the Old City, Whiteladies Road and Gloucester Road. There are also local entertainment centres within areas such as Bedminster, Shirehampton and Westbury on Trym and there are many licensed premises situated in predominantly residential areas.

The Licensing Act (2003) requires the City Council to carry out its licensing functions with a view to promoting the following specific objectives – called 'the licensing objectives':

- The prevention of crime and disorder;
- Public safety;
- The prevention of public nuisance; and
- The protection of children from harm

Most licensing applications need to be supported by an operating schedule. The schedule must specify (among other things) the steps the applicant proposes to promote each of the licensing objectives. This strategy can properly guide work undertaken on behalf of the Council's Executive in relation to licensed premises as follows:

- The council has a role as landowner in relation to a number of premises used for licensable activities operated by itself and by others, for example under a lease;
- The council facilitates events on its land which may involve contractual relationships with those whose activities will produce waste;
- On behalf of the Executive certain Council officers engage with the licensing process as "responsible authorities" and through this policy the Executive can emphasise the importance of considering waste management wherever it is relevant to the promotion of the four licensing objectives and making relevant representations where appropriate.

Bristol City Council Social Value Policy

The Public Services (Social Value) Act came into force in early 2013 and requires for the first time that all public bodies in England and Wales consider how the services they commission and procure might improve the economic, social and environmental well-being of the area. It asks public bodies to consider the ways that they could most benefit society as part of each decision made. In terms of Waste and Resources Management services this may, for example, take the form of supporting local repair and reuse schemes that have added social benefits such as good quality job and/or training opportunities. Waste and Resources Management services will ensure that, with each procurement process, part of the evaluation will consider the Social Value activities / policy of each bidder.

Towards a Zero Waste Bristol – Everyone’s Responsibility

Bristol City Council has an important role in encouraging everyone to behave in a more sustainable way, through promotion and education, the provision of services, and ultimately, through enforcement action. The City Council will uphold the principles outlined in this strategy, but everyone in the city has a part to play in reducing waste and making our neighbourhoods cleaner and tidier.

Ideally we must stop the problem at its source. This means significant changes from manufacturers, packaging methods and most of all, from the consumer. We live in a consumer led market and we need to learn how to make better choices in what we buy, especially in consideration of choosing low packaging and wasting less food.

If everyone repaired, re-used or recycled an extra item every day, or picked up one piece of litter this would make a huge impact on waste reduction and street cleanliness across the city. It’s a small step that collectively can make a big difference.

We can all contribute to implementing this strategy, just by modifying aspects of our behaviour:

Waste Prevention and Reduction

- Carry a bag with you when shopping
- Buy products with minimum packaging
- Pick up fruit and veg loose & avoid pre-packed.
- Buy reusable items instead of disposable
- Buy refills for goods
- Buy energy saving light bulbs
- Do not buy any unnecessary plastic bags - use a ‘bag for life’
- Stop unwanted mail, using services such as the Mail Preference Service (MPS)
- Home composting

Repair and Re-use

Goods and materials can be used again for the same use or a different purpose. Check if someone else could make use of it or try to use things more than once.

- Try to have broken or damaged goods repaired rather than buying new items
- Buy second hand or refurbished items
- Donate unwanted goods to charity shops
- Use rechargeable batteries
- Re-use jars & containers for storage – instead of cling film and foil
- Use scrap paper
- Re-use carrier bags
- Cover envelopes with a label and re-use
- Use real nappies
- Car boot sales, sell or give away items

Recycle

By making materials into something new the environment is protected by saving resources and energy and reducing the need for landfill. Materials such as glass, plastic, metals and paper all have a market value, a value which is lost if they are simply thrown away.

- Recycle at home through filling the black and green recycling boxes every week or use a mini-recycling centre
- Recycle food waste by using the brown bin every week
- People with gardens can compost their garden waste or request a green garden waste bin from the Council
- Recycle at home through using a Household Recycling Centre
- Recycle on the go through using a recycling centre
- Recycle on the go at work, university, college, school and elsewhere

Maintain Clean and Green Streets and Neighbourhoods

- Use the Council's bulky household item collection service to remove larger unwanted household items
- When out, put litter in a bin or recycling bin or take home for disposal later
- Business owners - ensure that customers and/or staff do not litter outside the premises
- Landlords – ensure that tenants use the weekly recycling services
- Be a responsible dog owner and clean up any mess
- Report any streetscene issues to the council (ie. abandoned vehicles, litter from businesses, fly-posting, graffiti, fly tipping etc)

What will Success Look Like?

The following outcomes, which reflect the aspirations of the Strategy, will help demonstrate success in achieving the objectives.

Table 3: Strategic Outcomes

OUTCOMES
Personal Responsibility: People produce less waste, are more waste conscious consumers and repair, re-use and recycle more. People are more aware that waste is a resource from which as much value as possible should be recovered. There is a reduction in environmental crime because the Council and partners have made it clear what is expected of residents through a combination of education and enforcement action.
Improved Environmental Quality: There is a shift in culture to value local environmental quality more highly. Human and animal welfare is better protected and local communities are attractive places in which to live, work and invest.
Economic Potential: The value of resources is realised through action and innovation to reduce, repair, reuse and recycle material currently put in people's black bins or which is littered or flytipped.
Co-ordination: Organisations in the city are better equipped to provide customers and staff with consistent messages about waste and resource management. Businesses and other organisations in the city are aware of their responsibilities and are actively making a positive difference to the local environment through more sustainable practices.
Value for Money: The cost effectiveness of public services is improved by reducing the amount of waste sent to landfill and the scale of clear up required for streetscene issues. The negative impact that waste, litter and flytipping has on wider society is reduced.

Performance Monitoring

Following the 2010 elections, local authorities were advised to set their own performance measures for monitoring waste services, depending on local concerns and priorities. Bristol City Council continues to use some of the previously existing national indicators and has added a number of local measures to this.

Table 4: Performance Monitoring

Measure	Frequency of Reporting
Percentage of household waste sent for reuse, recycling and composting	Quarterly
Percentage of municipal waste land filled	Quarterly
Residual untreated waste sent to landfill (per household)	Quarterly
Performance of the key Service Level Agreements with regard to the waste/recycling service	Quarterly
Percentage of people who are satisfied with the weekly recycling service	Annual
Percentage of people who feel that street litter is a problem in their neighbourhood	Annual
Percentage of people who are satisfied with the fortnightly general household waste service	Annual

Glossary of Terms

Abbreviation (if applicable)	Term Used	Definition
AD	Anaerobic Digestion	Anaerobic digestion is a collection of processes by which microorganisms break down biodegradable material in the absence of oxygen. The process is used for industrial purposes to manage waste and/or to produce fuels. During the process methane gas is recovered and the waste material is used as a soil fertiliser.
BETS	Bristol Energy and Technology Services (Supply) Ltd	Bristol City Council is the ultimate owner of BETS, through a wholly owned holding company (Bristol Holding Limited), and was established to offer Bristol residents the option of a greener and more affordable energy supply.
	Biodegradable	Materials which can be chemically broken down by naturally occurring micro-organisms into simpler compounds. In the context of this strategy it refers to waste containing organic material which can decompose giving rise to gas and leachate and other by-products.
	Bring bank/sites	Deposit facilities for the recycling of clean segregated materials such as glass and aluminium cans by members of the public.
BWC	Bristol Waste Company Ltd	Bristol Waste Company Ltd – a waste company wholly owned by Bristol City Council. Bristol Waste Company Limited was incorporated to become a subsidiary of Bristol Holding Limited alongside BETS (see above).
	Circular economy	A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate materials from products at the end of their service life.
	Clinical Waste	Derived largely from hospitals, medical and other related practices. Clinical waste is usually made up of medical dressings, soiled items, packaging from medical dressings, old medicines, used syringes, etc.
CHP	Combined Heat and Power	Combined Heat and Power (CHP) is the simultaneous generation of usable heat and power (usually electricity) in a single process.
	Commercial Waste	Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or

		entertainment, excluding municipal and industrial waste.
	Commingled Waste	Different recyclable materials (glass, plastic, paper, etc.) mixed together.
	Composting	A biological process which takes place in the presence of oxygen (aerobic) in which organic wastes, such as garden and kitchen waste decays or is digested by organisms. Compost is used to improve soil structure and provide nutrients.
	Construction/Demolition Waste	Includes waste arising from the construction, repair, maintenance and demolition of building and structures.
DEFRA	Department for the Environment, Food and Rural Affairs	The Government department with national responsibility for sustainable waste management.
	Digester	A large enclosed container in which anaerobic composting is carried out. Produces methane as a by-product.
EfW	Energy from Waste	Includes a number of established and emerging technologies, though most energy recovery is through incineration technologies. Many wastes are combustible, with relatively high calorific values – this energy can be recovered through (for instance) incineration with electricity generation, gasification, pyrolysis or refuse derived fuel.
	Fly Tipping	Unlawful dumping of waste. This is a criminal offence for which convicted persons may be fined and/or imprisoned and may also be ordered to pay costs of enforcement, investigation and clean up.
	Garden Waste	Household waste (such as grass and hedge clippings) for which the Council may make a charge for collection. Bristol City Council does make such a charge and regular users may pay for a green bin collection service. Citizens may also purchase garden waste sacks and request their collection from time to time.
	Gasification	The thermal breakdown of material by heating in a low oxygen atmosphere to produce a gas. This is then used to produce heat/electricity.
	Hazardous Waste	Waste which by virtue of its composition, carries the risk of death, injury or impairment of health, to humans or animals, has the potential to pollute water, or could have an unacceptable environmental impact if improperly handled, treated or disposed of.
	Household Waste	Waste that the council is under a duty to collect (and then dispose of) including waste from most residential accommodation and certain defined institutions such as schools, hospitals and nursing homes as defined in the Environmental Protection Act 1990.
HRC or	Household Recycling	Places provided in part satisfaction of the council's duty

HWRC	Centres/Household Waste Recycling Centres	to arrange places at which Bristol citizens may deposit their household waste and for the disposal of such waste. Where possible, the waste deposited at HRCs is recycled after sorting.
	Incineration	The controlled burning of waste, either to reduce its volume, or its toxicity. The incineration process is tightly regulated by EU rules to ensure the removal of most of the harmful gasses produced by the burning process.
	Landfill Site	Basically a large hole in the ground, licensed to receive a range of types of waste. The bottom and sides will be lined to control the spread of leachate (see below), and pipes may run through the waste below the surface to extract landfill gas (methane).
	Leachate	Noxious liquid that oozes out of landfills, particularly when the waste in it contains a lot of biodegradable material.
MRF	Materials Recovery Facility	A facility where components of a mixed waste stream are extracted by mechanical separation techniques. MRFs may be high or low technology facilities, depending on the sophistication of plant and equipment employed and the numbers of staff working on site.
MBT	Mechanical Biological Treatment	The MBT plant is to stabilise and separate the residual waste stream into less harmful and / or more beneficial output streams. MBT plants normally combine a number of different process technologies. The processes tend to involve a recycle recovery element with a form of biological treatment such as composting or anaerobic digestion.
	Methane	A gas that can be produced at landfill sites by the decomposition of organic material. Methane can be used to power generators that convert the gas into electrical energy that can be returned to the national grid.
MSW	Municipal Solid Waste	Municipal waste includes household waste and any other wastes collected by waste collection authorities (or their agents) such as municipal parks and gardens waste, beach cleansing waste, commercial or industrial waste and waste resulting from the clearance of fly-tipped materials (Source: Waste Strategy for England 2007).
MWMS	Municipal Waste Management Strategy	Section 32(1) to (7) of the Waste and Emissions Trading Act 2003 requires local authorities in all two-tier areas to produce a joint municipal waste management strategy (MWMS). As a unitary authority Bristol City Council is not obliged to produce a strategy, however central Government strongly encourages all councils to produce a MWMS.
	Pyrolysis	The heating of waste in a closed environment (i.e. in the absence of oxygen) to produce a secondary fuel product.

	Reuse	Reuse of materials in the original form, either by the householder, or via the manufacturer, without reprocessing.
	Thermal Treatment	Treating waste with heat. The most common is incineration, but may also include autoclaving (sterilising with steam) and pyrolysis (heating without air – the same process by which the old town gas was made), and other new technologies being developed.
	Waste arising	The amount of waste generated in a given locality over a given period of time.
WCA	Waste Collection Authority	Bristol City Council. As such the Council is under a duty to collect household waste in most circumstances and has the power to collect commercial waste, among other things.
WDA	Waste Disposal Authority	Bristol City Council. As such the council is under a duty to arrange for the disposal of the controlled waste collected in its area, provide places at which persons resident in the area may deposit their household waste and disposal of the waste deposited.
WTS	Waste Transfer Station	Site operated for the bulking and storage of waste for disposal (under Ender Environmental Protection Act 1990).
	Zero Waste	A long term vision to reduce consumption of goods by ensuring that products are made to be reused, repaired or recycled, so that what is now regarded as waste should instead be regarded as a mixture of resources to be used again where possible.