

“Glasgow is Scotland’s largest and most vibrant city, attracting over two million visitors every year”



It is also an exciting place for almost 600,000 residents and for people who work, study and do business in the city.

This means, on the challenging side, the council has to manage a great deal of waste. On average, we, as a council, pick up and dispose of around 30 million bin collections every year.

However, in the past five years, following the launch of the 2010 Waste Strategy we have made significant progress in transforming our waste facilities. We have invested time and resources to improve collection services; increase recycling; and reduce waste going to landfill.

But we want to; and need to do more.

When our **Glasgow Recycling and Renewable Energy Centre** opens next year, this will allow around 80% of waste to be diverted from landfill. It will also allow more waste to be recycled and it will create renewable energy from the treatment process.

To make sure Glasgow is able to meet this challenge, this refreshed strategy, developed with Zero Waste Scotland, will build on the good work of the 2010 Strategy.

It also guarantees Glasgow will maintain its crucial role as an innovator, and demonstrates Glaswegians are able to deliver the most resource efficient city in Scotland.



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Tackling Glasgow's Waste

Cleansing and Waste Strategy Action Plan 2015 to 2020

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“The first of many stepping stones to a Glasgow that wastes less and recycles more”



Introduction & Background

In 2010 a Waste Strategy was developed for Glasgow that set out a 10 year plan for the management of waste in the city until 2020.

This new Waste Strategy Action Plan from 2015 to 2020 provides a progress update on actions identified in the original 2010 strategy. It also sets out a clear action plan to make sure waste is managed more efficiently and we take advantage of every recycling opportunity over the next five years.

Review process

The review process began by establishing a working group to:

- co-ordinate the review process
- determine the reasons, scope and terms of reference of the review
- agree an implementation programme for the next five years

This followed workshops with Zero Waste Scotland, which allowed critical evaluation of Glasgow's current strategic approach to waste.

It also allowed us to consider any issues and service gaps, and also to look at best practice within other local authorities.

This review has been completed by the following project team from the council's Land and Environmental Services.

Tony Boyle	Cleansing and Waste Services Manager
Rolf Matthews	Waste Disposal Manager
Scott Armstrong	Recycling Manager
Kevin Howell	Recycling Manager
Gary Beacham	Recycling Manager
Adam Clarke	Projects Officer
Dougie Gellan	Cleansing Operations Manager
Martin McKelvie	Cleansing Operations Manager
Paula Reid	Clean Glasgow Programme Manager
Robert Davidson	Business Innovation & Governance Manager

Review actions

The team set out a list of actions as follows:

- Undertake a review of the 2010 Waste Strategy, providing a five year summary update of the original actions
- Refresh the waste strategy and to acknowledge new and emerging legal and policy issues
- Highlight significant progress achieved since 2010
- Widen the scope of the Waste Strategy to make sure that all strategic and operational aspects of waste management are fully considered
- Make sure a clear work programme is established for the next five years

Scope of the review

The 2010 Waste Strategy reviewed services and policy in line with the Scottish Government's Zero Waste Plan.

It described how the council would achieve the targets set out in the Single Outcome Agreement. It also described the ways in which Glasgow would contribute to national targets until 2020.

The 2010 Waste Strategy was defined as follows:

- **Waste** - Seeing waste as a resource rather than refuse and the opportunities this affords
- **Awareness** – Increase awareness of initiatives and opportunities to reduce, reuse and recycle waste
- **Sustainability** - Development which meets the needs of the present without compromising the ability of future generations to meet their own needs
- **Technology** – Embrace technology in our challenge to maximise recycling and waste resource potential
- **Environment** - Protect, improve and enhance the environment

Since the introduction of the Waste Strategy in 2010, there have been **significant developments** within the resource management sector.

- The publication of the Scottish Government Zero Waste Plan;
- The approval of the Waste (Scotland) Regulations 2012; and
- The developing work of the Zero Waste Taskforce.

These have all had an impact on the ways local authorities manage waste.

This review has been expanded to provide a strategic and operational overview of the following areas.

- Operational waste collections
- Recycling development
- Residual waste treatment and disposal
- Legal and policy drivers
- Efficiency opportunities
- Stakeholder engagement

Waste compositional analysis

A waste compositional analysis was carried out in December 2014 and March 2015.

It highlighted the following.

- 25% of the materials within the blue recycling collection bins were not targeted materials. This means materials had been incorrectly placed in the blue bin
- 32% of the general waste bin contained items which could be recycled
- 29% of the general waste bin contained food waste

Therefore, there is considerable scope to divert more dry mixed recycling and biodegradable waste from landfill.

The actions proposed within this review will seek to implement changes in order to increase recycling and divert waste from landfill.

Waste Strategy 2010 five year summary

The 2010 review set out 22 actions and five key objectives to advance Glasgow's aspirations towards reducing waste and increasing recycling.

Details on meeting the five key objectives are summarised below.

1 To achieve recycling targets as defined in the Single Outcome Agreement (SOA)

The council has made steady progress in improving its recycling rate by:

- ✓ establishing a new residual waste treatment facility, the Glasgow Recycling and Renewable Energy Centre (GRREC) which will separate and recover valuable materials
- ✓ investing in a new materials reclamation facility to process valuable materials
- ✓ introducing a kerbside glass collection service
- ✓ introducing a pilot food waste collection service

2 To achieve landfill diversion targets

There has been a reduction in the amount of waste managed by the council due to:

- ✓ the progression on various household recycling services that help to reduce the amount of waste that needs to be landfilled
- ✓ the economic downturn impacting on the volume of waste being generated.

3 To reduce the council's landfill tax burden

The council's successful household recycling services has helped reduce the amount of material sent to landfill, helping to reduce landfill tax liability.

4 To avoid landfill allowance penalties

The Landfill Allowance Scheme (LAS), which used to administer a system of banking, borrowing and penalties concerning the disposal of Biodegradable Municipal Waste (BMW), was suspended by the Scottish Government in 2012.

5 To reduce the council's carbon footprint

Land and Environmental Services have helped to reduce the council's carbon footprint by:

- ✓ recycling household materials, replacing the need to use virgin materials (materials sourced directly from nature in their raw form) which reduces energy requirements for reprocessing
- ✓ introducing gas management systems at Cathkin landfill which generate electricity
- ✓ commissioning the GRREC which will recycle more materials and generate energy, heat and steam from the treatment process

You can view a progress summary of the 22 actions of the 2010 Waste Strategy, including further analysis of each specific action, on our website.

Where we are now

Service profile

The council is responsible for managing and delivering the city's cleansing and waste operation, through its City Cleansing and Waste Service in Land and Environmental Services.

This service also includes the waste strategy, recycling and disposal section which is responsible for developing recycling and waste policy and managing recycling, disposal and landfill operations.

Refuse collection

We, as a council, provide a wide range of refuse collection services across the city. The way we collect refuse depends on the type of property; and the type of access required for households and businesses.

Residual waste collections

We uplift domestic waste every two weeks for households who place their waste on the kerbside for collection.

We collect waste once a week from flats; and a commercial refuse collection service is provided to over 5000 customers across the city.

A summary of the residual waste collections is listed below.

- | | | |
|-----------------------|------|--------------------------------|
| • Kerbside | 2.8 | million collections every year |
| • Flats | 13.6 | million collections every year |
| • Commercial premises | 1.3 | million collections every year |

Recycling services

We provide a wide range of recycling collection services, public recycling sites and household waste recycling centres (HWRCs) in the city.

Yearly recycling collection totals are summarised below.

- | | |
|--|-------------|
| • Kerbside commingled dry mixed recyclate* | 2.8 million |
| • Kerbside organic garden waste | 2.2 million |
| • Flatted commingled dry mixed recyclate | 1.7 million |
| • Kerbside glass | 0.3 million |

*paper, cardboard, plastic bottles and cans

We have also provided public collection points across all areas of the city. These include:

- four household waste recycling centres; and
- 672 public recycling points.

Bulk uplift collection service

We provide a bulk uplift service to residents for items which can't be uplifted in the normal refuse service.

We also provide a separate collection of waste electrical and electronic equipment (WEEE), which is recycled in partnership with our WEEE Producer Compliance Scheme contractor.

About 21,000 tonnes of bulk waste is uplifted every year.

Waste disposal and recycling

The service manages:

- five closed landfill sites
- three waste transfer stations; and
- one materials reclamation facility

The council owns and operates the Blochairn Materials Reclamation Facility (MRF). Every year this facility processes more than 23,000 tonnes of dry mixed household recycling material and separates it into the individual recycling materials. This generates income and contributes to Glasgow's recycling rate.

Street cleansing and litter

The council provides a 24 hour street cleansing and litter service to the city, seven days a week, 365 days a year.

This service is responsible for maintaining 358,213 km of streets; managing 100 km² of public spaces; uplifting three million street litter bins across 56 neighbourhoods in the city; Collecting and disposing of around 11,500 tonnes of street litter; and removing litter from the River Clyde.

Resources

Budget

For 2015 to 2016 the net expenditure budget is estimated at £67.9 million, which for the three service areas is as follows.

- Refuse collection £16.4 million
- Waste disposal £34.9 million
- Street cleansing £16.6 million

Details of the financial resources for 2015 to 2016 are highlighted in table one.

Budget Estimate 2015/16	Refuse Collection	Waste Disposal and Recycling	Street Cleansing
Expenditure	£	£	£
Employees	14,016,700	5,560,300	11,247,500
Premises	0	3,196,000	5,000
Transport	6,387,200	3,497,400	2,441,800
Supplies and Services	801,600	4,266,900	368,700
Third Party Payments	0	24,461,100	0
Internal Allocations	288,900	378,500	189,900
Management & Supervision	1,739,050		1,739,050
	23,233,450	41,360,200	15,991,950
Income			
Customer and Client Receipts	-6,375,900	-5,657,600	-192,800
IDT Recharge Income	-471,200	-738,800	-5,000
	-6,847,100	-6,396,400	-197,800
Clean Glasgow			853,100
Net Expenditure	16,386,350	34,963,800	16,647,250

Table one – Financial resources

Staff

For 2015 to 2016 City Cleansing and Waste (CCW) has 1,275 front line employees, split into three service areas and supported by a management, supervisory and clerical team of 78.

The three service areas and numbers of staff in each area are shown below.

Service Area	Number of Staff
Refuse collection	573
Waste disposal	175
Street cleansing	527

Vehicles and Plant

For 2015 to 2016 the cleansing and waste service has a fleet of 313 vehicles and plant. This includes refuse collection vehicles, vans, articulated trucks, high reach loaders and trailers. A split for the three service areas is as shown below.

Service Area	Number of vehicles
Refuse collection	123
Waste disposal	76
Street cleansing	114

Locations

City Cleansing and Waste Services are based at the following locations.

Waste disposal complexes

- Polmadie
- Shieldhall
- Queenslie
- Dawsholm

Cleansing depots

- City Centre – Anderston
- Eastern
- Western
- St. Rollox

Materials reclamation facility

There is one materials reclamation facility (MRF) at Blochairn.

Waste strategy and council strategic priorities

The Waste Strategy is clearly linked to the council's wider strategic priorities and structured around the following six key themes.

- Economic Growth
- A Vibrant City
- A Sustainable City
- A City That Looks After Its Vulnerable People
- A Learning City
- Making Best Use of Our Resources

The council's cleansing and waste services aims to efficiently manage our resources in the following areas.

- Workforce
- Budget
- Physical assets

When developing and reviewing new actions, we need to consider other related council strategies, such as Future Cities, Clean Glasgow, Sustainable Glasgow and the City Centre Strategy.

Performance management

Cleansing and Waste Services contributes to a wide range of internal and external key performance indicators (KPIs) which are highlighted below:

✓ External KPIs

- | | |
|--|----|
| ▪ Society of Local Authority Chief Executives (SOLACE) | 10 |
| ▪ Association of Public Sector Excellence (APSE) | 61 |
| ▪ Keep Scotland Beautiful (KSB) | 1 |

✓ Internal KPIs

- | | |
|--|----|
| ▪ Yearly Service Plan and Improvement Report (ASPIR) | 8 |
| ▪ Four times a year | 10 |
| ▪ Corporate scorecard | 6 |

Various KPIs are used for different reporting parameters which are a quantitative and, or qualitative measure. They measure if the council is making progress in particular areas.

In the area of waste management, KPIs are used to measure the cost of refuse collection, waste disposal and street cleansing.

The indicators are also used to measure the proportion of waste that is recycled, composted and landfilled.

Existing KPIs will continue to be used to monitor progress of the implementation of the waste strategy which aims to make the most efficient use of resources.

Refuse and recycling

Since 2010 Glasgow has improved its waste management performance.

The amount of waste sent to landfill has been steadily falling whilst the amount of waste recycled and composted has increased.

Flats and tenements, which make up around 62% of households in the city, present significant challenges when providing recycling collection services.

The trend over the last five years with respect to the tonnage of household waste landfilled, recycled and composted is highlighted on chart one below.

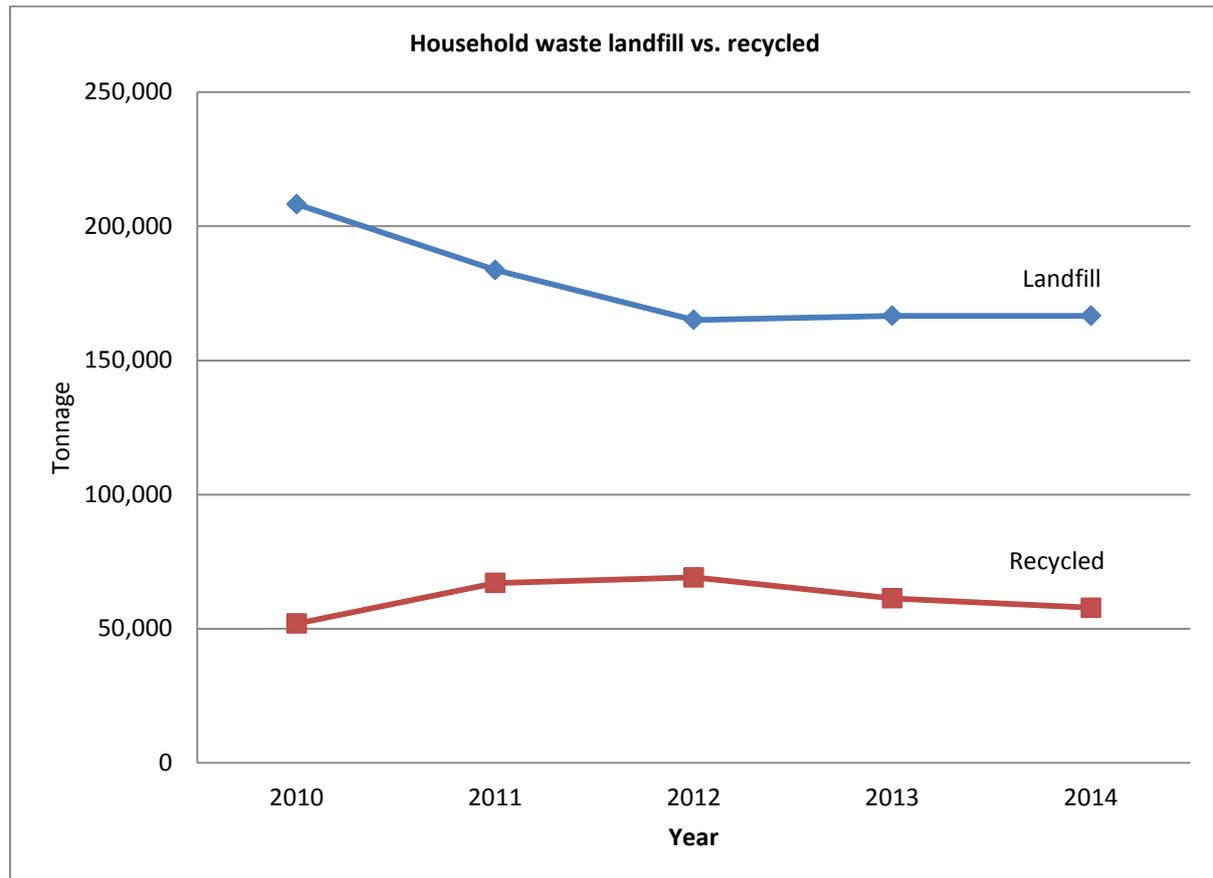


Chart one – Tonnage of household waste landfilled vs. recycled

Since 2010 there have been several major developments to improve the operational efficiency and to increase recycling which include the following.

- ✓ We have introduced a managed weekly collection service for kerbside properties
- ✓ We accept cardboard into the blue recycling bins
- ✓ We have introduced a 'four on, four off' shift pattern
- ✓ We have procured and are constructing a residual waste treatment plant, which is due to become operational in early 2016
- ✓ We have procured a new materials reclamation facility
- ✓ We have expanded public recycling points across the city
- ✓ We introduced a food waste collection pilot which ran from July 2013 to July 2014.

The amount of waste landfilled will drop dramatically from spring 2016 when the Glasgow Recycling and Renewable Energy Centre (GRREC) begins receiving waste.

The GRREC will also contribute to an increase in the recycling tonnage.

Glasgow aims to improve its recycling performance over the next five years by doing the following.

- We will introduce a food waste collection service, from January 2016
- We will also increase the number of recycling bins in the city
- We will improve the council's materials reclamation facility
- We will provide a communications strategy for recycling

The projection for the next five years for landfill and recycling is highlighted on chart two below.

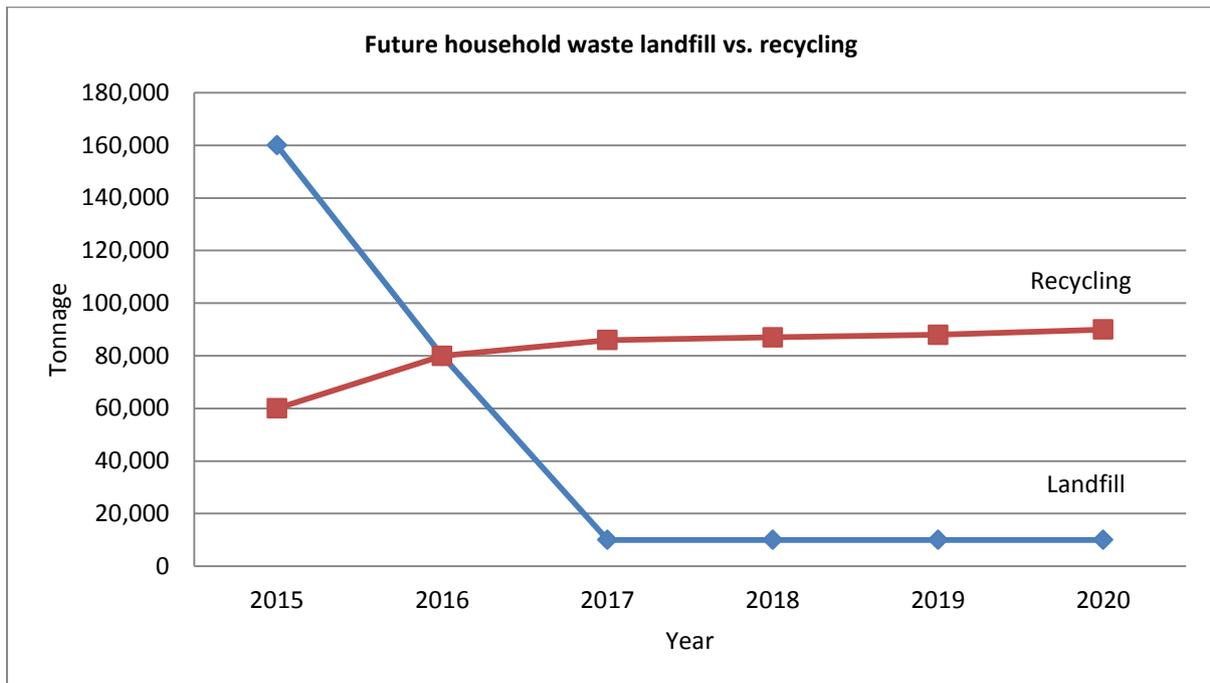


Chart two - Projected tonnage of household waste landfill vs. recycling



Manual waste separation at Blochairn MRF

Street cleansing and litter performance

The cleanliness of Glasgow's streets remains a priority for the council.

New street furniture provided by the council, such as litter bins and 'recycling on the go' bins, will help to improve environmental performance. They will also provide residents and visitors with the option to recycle when they are away from their home.

Street cleansing and litter performance is measured by the Local Environmental Audit and Management System (LEAMS) and managed by Keep Scotland Beautiful (KSB).

LEAMS measures the percentage of areas assessed as 'clean' rather than completely litter free and challenges authorities to tackle problem areas to achieve better results.

In 2014 Glasgow attained its best ever rating from LEAMS.

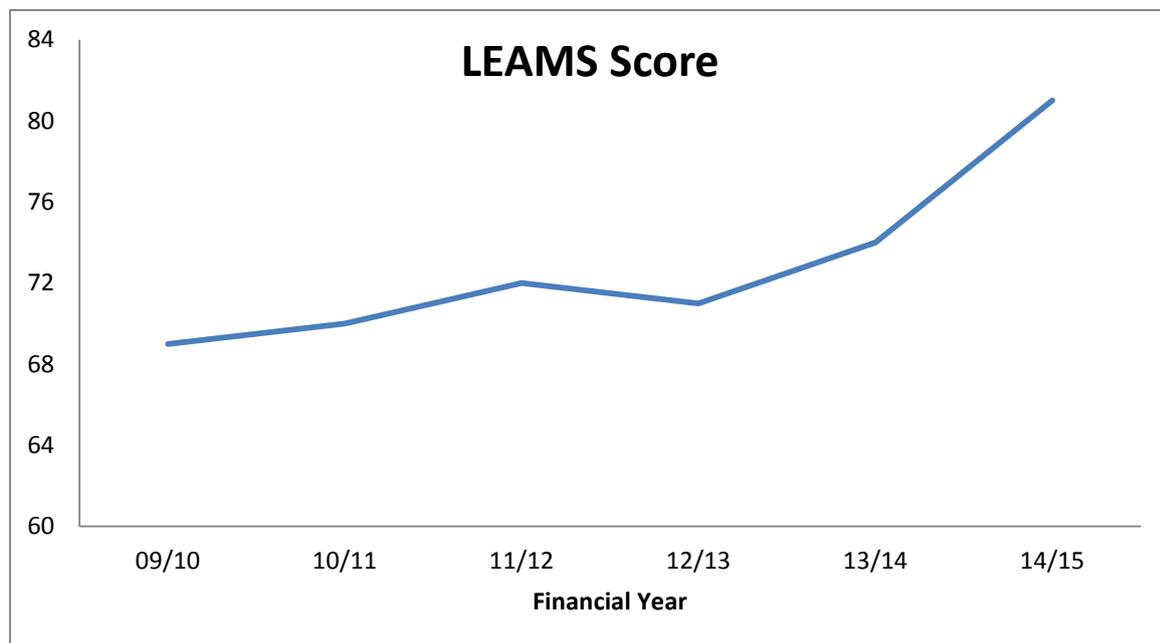


Chart three - LEAMS Performance

Core KPIs

The KPIs noted below will be used for monitoring the progress of the waste strategy from 2015 to 2020. Some of the KPIs will be verified by external bodies, such as the Scottish Environment Protection Agency (SEPA) and Keep Scotland Beautiful (KSB).

Core KPIs:

- The percentage of household waste recycled and composted (verified by SEPA)
- Tonnage of household waste recycled and composted (verified by SEPA)
- Tonnage of household waste landfilled (verified by SEPA)
- Tonnage of household waste sent for recovery (verified by SEPA)
- Street cleanliness index score (LEAMS) (as confirmed by KSB)
- Waste collection cost (gross and net)
- Waste disposal cost (gross and net)
- Street cleansing cost (gross and net)

Note: In April 2011 the national recycling and composting performance measurement (compiled and published by SEPA) was changed to quantify household waste only. The previous indicators relate to household waste only. The information is now reported over the calendar year.

Legislation and policy drivers



Chart four - Legislation and policy drivers

Waste strategy - legislation

There is an increasing amount of legislation and government policy which impacts on how waste is managed in Glasgow. The key policy drivers are summarised below.

European Union waste framework directive

The Waste Framework Directive (WFD) was introduced in 2006 and revised in 2008. It provides an overarching legal framework for the management of waste across Europe.

Scotland's Zero Waste Plan

The Zero Waste Plan (ZWP) was published in June 2010 by the Scottish Government and sets the strategic direction for waste policy in Scotland until 2020. It does this by setting out a mission and a vision, which are detailed below.

Mission: "To achieve a zero waste Scotland, where we make the most of efficient use of resources by minimising Scotland's demand on primary resources, and maximising the re-use, recycling and recovery of resources instead of treating them as waste."

Vision: "This vision describes a Scotland where resource use is minimised, valuable resources are not disposed of in landfills, and most waste is sorted into separate streams for reprocessing, leaving only limited amounts of waste to go to residual waste treatment, including energy from waste facilities."

The Zero Waste Plan introduced a number of targets. A summary of the targets is provided in table two overleaf.

	Zero Waste Plan - Target and cap	Year	Source
1	40% recycling and or composting and preparing for re-use of waste from households	2010	Scottish Government target
2	No more than 2.7 million tonnes of biodegradable municipal waste to be sent to landfill	2010	Article 5(2) of the EU Landfill Directive
3	50% recycling and or composting and preparing for re-use of waste from households	2013	Scottish Government target
4	No more than 1.8 million tonnes of biodegradable municipal waste to be sent to landfill	2013	Article 5(2) of the EU Landfill Directive
5	The preparing for re-use and the recycling of 50% by weight of waste materials such as paper, metal, plastic and glass from household waste and similar	2020	Article 11(2)a of the EU Waste Framework Directive (WFD)
6	60% recycling and or composting and preparing for re-use of waste from households	2020	Scottish Government target
7	No more than 1.26 million tonnes of biodegradable municipal waste to be sent to landfill	2020	Article 5(2) of the EU Landfill Directive
8	70% recycling and preparing for re-use of construction and demolition waste	2020	Article 11(2)(b) of the revised EU WFD
9	No more than 5% of all waste to go to landfill	2025	Scottish Government target
10	70% recycling and or composting and preparing for re-use of all waste by 2025	2025	Scottish Government target

Table two – Summary of waste targets

Waste management hierarchy

The principle of the waste management hierarchy is to:

- prevent or minimise waste; or
- re-use the material followed by recycling then recovery, with disposal being the last option or lowest priority

As most of the waste in Glasgow is still landfilled, existing waste management practices are, at present, towards the bottom of the hierarchy. This will change significantly when the Glasgow Renewable and Recycling Energy Centre (GRREC) opens in 2016.

The waste management hierarchy is shown in chart five overleaf.



Chart five – waste management hierarchy

Waste prevention and re-use

The Zero Waste Plan and Waste Framework Directive have both set targets which cover recycling and composting but also encompass re-use.

Waste prevention is defined within the Waste Framework Directive as measures taken before a substance, material or product has become waste, to reduce:

- the quantity of waste, which includes the re-use of products, the extension of the life span of products, reductions in packaging and so on
- the adverse impacts of waste on the environment and human health
- the content of harmful substances in materials and products

The Scottish Government Zero Waste Plan is committed to developing a waste prevention plan aimed at reducing the amount of waste produced and encouraging re-use wherever possible.

Action 11 of the Scottish Government policy document, *Safeguarding Scotland's Resources*, outlines the requirement to work across all sectors to develop, supply and stimulate refurbishment and repair infrastructure.

This aims to generate demand for goods through the Revolve accreditation system (re-use quality standard for shops who sell second hand goods in Scotland) and to raise awareness of re-usable goods for households and business.

Additional guidance and codes of practice

Since the publication of the Zero Waste Plan a range of supporting guidance and legislation has been produced. These are highlighted in table three overleaf.

Zero Waste Plan regulations and guidance	Aim of guidance	Impact on local authorities
<p>The Waste (Scotland) Regulations 2012</p>	<p>Resource based approach to manage waste from all sectors to maximise recycling and maximise resource recovery</p>	<p>Requirement to provide householders with a collection service for dry recyclables and food waste</p> <p>Requirement to take reasonable steps to promote higher quality recycling materials</p> <p>Requirement to arrange a commercial recycling service</p> <p>Ban on materials collected separately for recycling going to landfill or incineration</p>
<p>Kerbside Good Practice Guide September 2012</p>	<p>Provide guidance and examples demonstrating good practice in waste collection services</p>	<p>For reference when amending or introducing new services</p>
<p>Safeguarding Scotland's Resources: Blueprint for a More Resource Efficient and Circular Economy October 2013</p>	<p>Prevent waste, increase resource efficiency and enable a shift towards a more circular economy</p>	<p>To support pilots for the collection of reusable items including recycling centres and kerbside services</p>
<p>Duty of Care: A Code of Practice 2014</p>	<p>Compliance with Section 34 of the Environmental Protection Act as amended by the Waste (Scotland) Regulations 2012</p>	<p>Duty to make sure when waste is transferred it is sufficiently well described to enable its safe recovery or disposal without harming the environment</p> <p>Duty to take reasonable steps to increase the quantity and quality of recyclable materials</p>
<p>Code of Practice on Sampling and Reporting at Materials Reclamation Facilities March 2015</p>	<p>Improve the quality of materials collected within dry mixed collection schemes and improve the quality of materials sent to re-processors</p>	<p>Requirement to sample and monitor the material input and output from a MRF (The council's Blochairn MRF). Compliance with the Code of Practice will become a condition of the waste management licence</p>

Table three – additional waste regulations and guidance

Waste (Scotland) Regulations 2012

The Waste (Scotland) Regulations 2012 represent a significant development for recycling in Scotland.

The Regulations are designed to realise the true value of resources that are discarded and will play a key role in helping Scotland reach its ambitious target of 70% recycling of all waste by 2025.

The key points outlined in the Regulations are as follows:

- Local authorities to provide a basic recycling service to all households by 1 January 2014
- Local authorities to offer a food waste recycling service in non-rural areas from 1 January 2016
- A ban on material collected for recycling going to landfill or incineration (from 1 January 2014)
- A ban on municipal biodegradable waste going to landfill by 1 January 2021
- All businesses and organisations to present key recyclable material for collection from 1 January 2014
- Food waste businesses producing over 50kg of food waste per week to present it for separate collection from 1 January 2014
- Food waste businesses producing over 5kg of food waste a week to present it for separate collection from 1 January 2016
- A ban on the use of macerators to discharge food waste into the public sewer from 1 January 2016

Circular economy

The circular economy, in a waste context, refers to re-using, repairing, refurbishing and recycling existing materials and products.

A chart depicting the ethos of the circular economy is provided in chart six below.

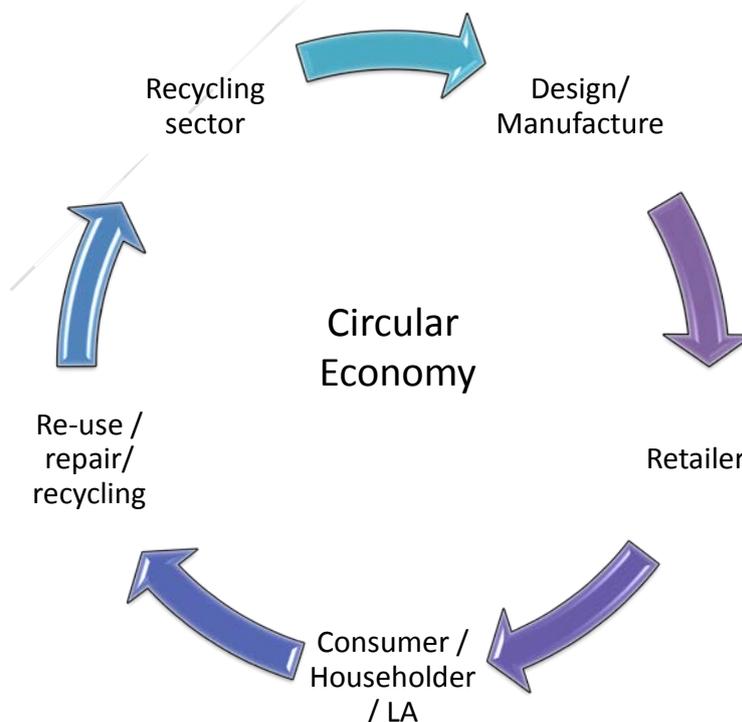


Chart six - circular economy

The EU withdrew their original Circular Economy package in 2014. It is aiming to present a new, more ambitious Circular Economy strategy in late 2015. This will transform Europe into a more competitive resource-efficient economy, addressing a range of economic sectors, including waste.

The Scottish Government will then develop a circular economy roadmap for Scotland. This will incorporate recycling systems, remanufacturing, skills, opportunities for businesses, climate change issues and the policies required to develop a successful circular economy.

Scottish Government zero waste taskforce

The Scottish Government established a Zero Waste Taskforce (ZWT) to complement the plans set out in the Zero Waste Plan.

The government will seek to provide the leadership needed to stimulate and enhance the economic benefit of Scotland's waste materials.

Since March 2015 the ZWT has identified the following key work streams:

- **Communications** – to improve recycling performance across the country
- **Systems** – to improve the quality of materials collected within local authority recycling collection schemes
- **Contracts** – making the most of public sector procurement and maximising existing policies and regulation to best effect. Establishment of a Scottish Materials Brokerage Service will help to grow Scotland's reprocessing sector, and help the public sector to get a better deal for the recycled materials collected from within their area

Household recycling charter

In June 2015 the Scottish Government and the ZWT agreed to develop a charter for more consistent recycling. A Household Recycling Charter is the key recommendation from the ZWT. The intention is that the charter will make it easier for people to recycle, with consistent recycling systems and communications across the country. If agreed, all local authorities will be invited to sign up to the charter, making recycling schemes more consistent. A code of practice will also be developed to support the charter.

Landfill tax

The main financial driver with respect to waste is landfill tax. The Scottish Government assumed new financial controls for landfill tax in 2015 and Revenue Scotland is now the tax authority responsible for the administration of Scotland's landfill tax, with support from SEPA.

Scotland's landfill tax is a tax on the disposal of waste to landfill and is charged by weight on the basis of two rates: a standard rate for active materials; and a lower rate for inactive (referred to as 'inert') materials.

As was the case with UK landfill tax, operators of landfill sites in Scotland will be liable for Scottish landfill tax, and this cost is expected to be passed on to the local authorities and businesses who dispose of waste at landfill sites.

From 1 April 2015 the standard rate of Scottish landfill tax is £82.60 per tonne (for active materials) and the lower rate is £2.60 per tonne (for inactive materials).

In 2014/15, Glasgow City Council disposed of 229,227 tonnes of waste to landfill. The cost of this disposal in landfill tax alone was £18.3m.

Street cleansing and litter legislation and guidance

Under the Environmental Protection Act 1990, the responsibility for clearing litter from streets and public areas lies with local authorities. Provided the standards in the Code of Practice on Litter and Refuse (Scotland) 2006 (COPLAR) are met, local authorities are free to determine how best to fulfil their litter clearing duties. COPLAR provides practical guidance on the discharge of duties imposed on all relevant bodies to keep specified land clear of litter and refuse.

The Scottish Government's litter strategy (August 2014), Towards a Litter Free Scotland, aims to tackle litter, fly tipping issues and boost recycling by addressing the following areas:

Information

- Communication - explaining why people should do the right thing with waste
- Education - encouraging long-term positive attitudes to waste and littering
- Local community action - helping people to take responsibility for their areas

Infrastructure

- Product and service design - working with businesses and designers to prevent materials from becoming litter
- Opportunities for recycling - increasing facilities in public places (such as Recycle On the Go) and increasing the range of commonly recycled materials
- Guidance - providing effective advice and best practice to the people whose jobs include a particular responsibility to tackle litter and flytipping
- Funding and support - targeting resources on activity which delivers litter-free environments
- Research and monitoring - to increase understanding of how successful specific actions are in helping to reduce the problem, and informing future action
- Flytipping - further work to understand the reasons why people flytip and identify the possible solutions

Enforcement

- Strengthening the enforcement system with laws and procedures that deter offenders
- Training - to support enforcement officers as they carry out their duties

Further information on legislation

Further information on the relevant legislation applicable in Scotland can be viewed on our website.

Tackling Glasgow's Waste 2015 to 2020

Strategic themes and key priorities

To develop and measure the improvements we need for Glasgow's Waste Strategy 2015 to 2020, we have identified the following four strategic themes.

1. Development of Infrastructure
2. Transformational Governance
3. Policy and Strategy
4. Communication and Stakeholder Management

These strategic themes are supported by eight key priorities:

- ✓ Key services
- ✓ Reduce, re-use, recycle, recover
- ✓ Education and awareness
- ✓ Innovation and technology
- ✓ Customer first
- ✓ Service reform
- ✓ Strategic partners
- ✓ Performance management



Chart seven – strategic themes and key priorities to 2020

Strategic Themes

1. Development of infrastructure



Over the last five years our waste infrastructure has developed in the following areas:

- ✓ We have provided households with a wide range of bins. These include separate bins for commingled dry mixed recyclables - paper, cardboard, plastic bottles and cans; glass bottles and jars; and garden waste
- ✓ We have introduced more public recycling points
- ✓ We have upgraded the household waste recycling centres (HWRCs)
- ✓ We have redeveloped Blochairn MRF
- ✓ We have a contractual partnership with Viridor for construction of GRREC at Polmadie
- ✓ We have carried out a survey of 20,000 backcourts at tenement properties (which is about 152,500 households)

While significant progress has been made there are areas for improvement as follows:

- Missing bins within some tenement backcourts which were identified from the recent survey
- Inadequate bin lids on the blue bins in tenement backcourts. There has been deterioration of brush top lids resulting in rainwater affecting the quality of paper
- Kerbside properties without the full amount of recycling bins
- Requirement for additional public recycling points
- Requirement for additional communal recycling points at high-rise premises

2. Transformational governance



In delivering Glasgow's Waste Strategy it is essential that we are able to manage change in response to government policy and legislation.

Our service has delivered change in the following areas over the last five years.

- ✓ We have moved frontline service delivery to a seven day operation to a four on four off shift pattern. This has made significant operational savings as well as reducing Glasgow's carbon footprint through reduced retention of vehicles
- ✓ We have completed a pilot food waste collection service
- ✓ We have introduced a managed weekly collection service
- ✓ We have improved waste and recycling collection routes
- ✓ We have installed vehicle tracking technology to support refuse and street cleansing operations
- ✓ We have closed Cathkin landfill site

To improve recycling performance and operational efficiency, we aim to:

- introduce a household food waste collection service to all properties across the city
- review the frequencies of waste collection services
- review our street cleansing service
- review our commercial waste service
- review our waste disposal fleet operation

3. Policy and strategy



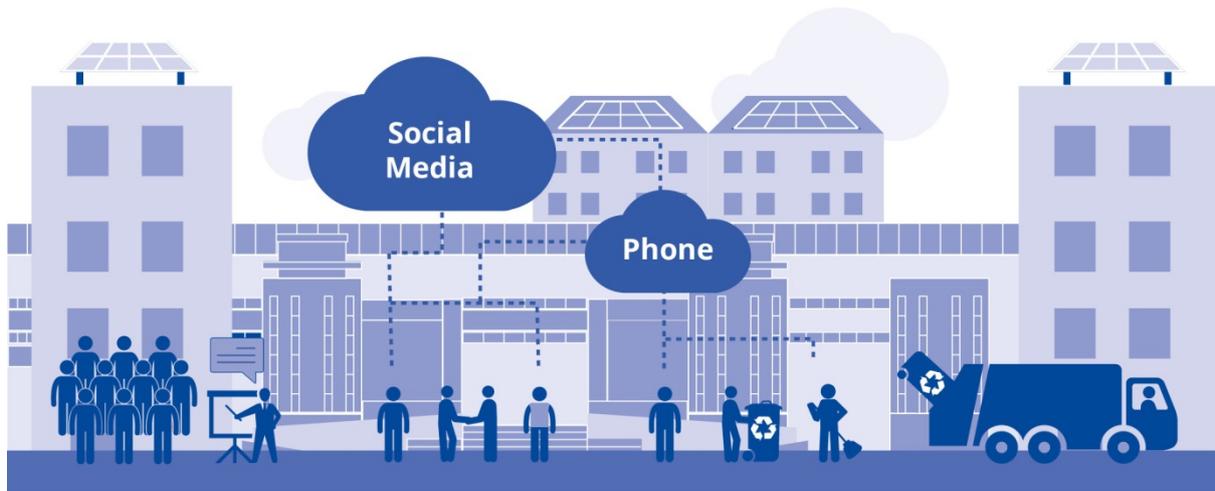
Glasgow's 2010 Waste Strategy has been reviewed in line with national policy. Progress has been made in the following areas.

- ✓ Signed a residual waste treatment contract for 'black bag' waste to allow diversion of a minimum 80% waste from landfill and achieve a recycling rate of 18%
- ✓ Introduced a managed weekly collection service to all kerbside properties to improve household recycling
- ✓ Developed a close working relationship with Zero Waste Scotland

Further development will include:

- Policy reviews – bulk and excess waste, bin provision, household waste recycling centre, bin contamination, waste collection and street cleansing
- Waste sampling and monitoring at Blochairn MRF

4. Communication and stakeholder management



Communication and stakeholder engagement are essential for the successful delivery of Glasgow's Waste Strategy.

Our stakeholders include:

- ✓ Frontline cleansing and waste staff
- ✓ City residents
- ✓ City workers and visitors
- ✓ Elected members
- ✓ External organisations
- ✓ Re-processors and contractors
- ✓ Other council services

We have engaged with our stakeholders in the following areas.

- ✓ Frontline staff – training, toolbox talks
- ✓ Householders – recycling calendars and website development
- ✓ Elected members – briefings
- ✓ External organisations – legislation and consultation, funding applications
- ✓ Contractors – contract management meetings

Further engagement will include:

- a recycling communication campaign to all residents on all recycling services
- a communication campaign to all residents prior to the introduction of the new food waste collection service

Key priorities

Key services

This strategy aims to define the full range of waste and recycling services provided by the council and also to define the key service areas that require to be developed to 2020.

Refuse and recycling collection services

Glasgow City Council carries out more than 24 million waste collections every year and has invested significantly to encourage households to increase the amount of waste they recycle.

In 2010, changes in waste collection services brought key efficiencies to the management of the operation, most notably in savings related to non-contractual overtime and vehicles.

From August 2011, a managed weekly collection service (MWCS) was introduced to kerbside collection properties to help reduce the level of residual waste in the green bin and increase recycling. Cardboard was also able to be added to the blue recycling bin.

An extensive survey of backcourts for flatted properties, with the support of ZWS, established the number and type of bins available and identified access issues.

Our recycling services vary depending on the type of property residents live in. Table four provides further details on the services that are currently provided to the respective property types.

Property Type	Residual	Commingled Dry Mixed Recyclate	Garden	Food	Bulky	Glass
Kerbside	Yes	Yes	Yes	No	Yes	Yes
Flatted	Yes	Yes	No	No	Yes	No
High-rise	Yes	Yes	No	No	Yes	No

Table four – Waste and recycling collection services

A range of public recycling points (glass, textiles, commingled dry mixed recyclables) are available throughout the city and predominantly located in areas near flatted properties.

Recycling collections

- A **blue bin** recycling collection service was introduced in 2003. Blue recycling bins issued to kerbside and flatted properties accommodate paper, cans, plastic bottles and cardboard and are collected every two weeks
- A **brown bin** recycling collection service was introduced in 2000. Brown bins issued to all kerbside properties with gardens accommodate garden waste and are collected fortnightly from March to November

- A **bulk waste** collection service is provided to kerbside and flatted properties. The service deals with two types of collections
 - Large refuse items from domestic households, for example furniture
 - Electrical and electronic equipment, for example televisions, fridges and freezers
- A **purple bin** glass recycling collection service was introduced in 2010. Purple bins issued to kerbside properties accommodate glass bottles and jars and are collected every four weeks
- Pilot **food waste** collection service, from July 2013 to July 2014, helped inform proposals for the introduction of a city wide service from January 2016

Commercial waste collection service

Under the Environmental Protection Act 1990, the council has a duty to arrange a commercial waste collection service, if requested. The council provides this service to over 5000 commercial customers.

The Waste (Scotland) Regulations 2012 requires commercial premises to separate their recyclable waste from their general waste.

Investment would be required to provide these additional recycling services, and to comply with the 2012 regulations.

Internal recycling

In June 2015, a food waste collection service was introduced to the main city centre offices, and is likely to be extended to other offices across the city.

We need to assess the recycling service we provide to council offices and the council's Arms' Length External Organisations premises.

Waste disposal

The council operates three waste transfer stations located across the city. General waste, organic garden waste and bulk waste is taken to the waste transfer stations by the council's waste collection services. The waste transfer stations also accept waste from businesses and other third party collectors.

Waste transport

The waste disposal fleet, which consists of articulated vehicles and trailers, transports the daily collections of general waste from the three waste transfer stations to the council's landfill partner.

In addition, bulk waste, garden waste, wood waste and commingled dry mixed recycling is transported to our reprocessing partners.

Landfill

Glasgow City Council is responsible for the management of the following five closed landfill sites.

- Kilgarth
- Wilderness
- Summerston
- Cathkin I
- Cathkin II

These sites no longer accept Glasgow's waste. They are managed according to the waste management licence and pollution prevention control permit issued by the Scottish Environment Protection Agency (SEPA).

The council is responsible for making sure these sites are monitored and do not cause any environmental harm.

All sites are undergoing a restoration and remediation programme. A five year contract is also in place to take Glasgow's waste to a private sector landfill site.

On-going environmental monitoring at each of the council's landfill sites will take place until applications are made to surrender the licences and/or permits to the Scottish Environment Protection Agency.

Street cleansing and litter



Street sweeping

Glasgow has made significant progress over the last 20 years transforming the physical environment of the city.

The city has also established its position as a leading business and tourism destination.

While recognising the significant improvements to the city, environmental issues are still a major concern for a number of local communities.

Clean Glasgow



Clean Glasgow schools litter pick

Clean Glasgow is the council's campaign to make the city a cleaner and safer place.

Prevention is the main aim of Clean Glasgow and encourages individuals to take responsibility for our environment, at home, school, work or at play.

Clean Glasgow encourages the public to:

- Stop littering
- Stop fly tipping
- Stop dog fouling
- Stop graffiti and fly-posting
- Be responsible citizens and adopt a "reduce, reuse, recycle" attitude
- Take pride and ownership in the environment and report problems

Clean Glasgow demonstrates the council's commitment to addressing these environmental issues experienced by residents, businesses and visitors to Glasgow.

A wide range of activities are undertaken by Clean Glasgow, from supporting community action such as litter picks, to graffiti removal and the issuing of fixed penalty notices to those who litter, fly tip or allow their dog to foul.

Local operating working groups

Local operating working groups (LOWGs) have been established to deliver Clean Glasgow objectives at a local level. They have also been tasked with making sure resources within the local area are deployed efficiently.

Each LOWG has a Clean Glasgow action plan to address education, enhancement, engagement and enforcement.

The action plan is updated and reviewed throughout the year. It includes 'Days of Action' which see local groups, businesses and organisations assist in tackling environmental issues within specific areas.

Recycling on the go

In 2008 Glasgow City Council was the first local authority in the UK to introduce recycling bins as part of the street furniture.

- Fifteen sites were located throughout the city centre
- In 2010 20 street bins, which were split into one side for litter and the other side for dry mixed recycling, were sited around George Square. These were introduced to encourage the public to separate their recyclables and to increase awareness of recycling while away from home

In 2012 180 recycling bins were placed around the city centre and in six of the council's parks.

In 2014, 40 recycling bins were sited around the city before the Glasgow 2014 Commonwealth Games and damaged street litter bins were replaced.

Key services – considerations

- Inconsistent bin infrastructure in backcourts
- Inconsistent bin containment in backcourts
- Waste collections are resource intensive
- High landfill and treatment costs
- Not all household properties receive a recycling collection
- Household properties unable to recycle valuable materials
- Legal requirement to provide a household recycling service
- Communications to householders regarding public recycling points
- Public recycling points not standardised
- Declining number of commercial customers
- Commercial operational costs exceed budget revenue costs
- Provision of additional recycling services to commercial and Arms' Length External Organisation customers
- Significant funding required for commercial services
- Restricted space commercial premises to provide additional bins
- On-going maintenance requirements for the waste transfer stations and depots
- High costs of delivering the current waste transfer service
- Waste disposal fleet is now moving waste to landfill and other recycling partners including bulk, garden and paper waste.

Key services – associated actions

1. Review residual waste bin infrastructure for flats
2. Identify and add new and existing kerbside properties to commingled dry mixed recycling blue bin collection routes
3. Identify and add new and existing flatted properties to commingled dry mixed recycling blue bin collection routes
4. Identify and add new and existing kerbside properties to organic waste collection routes
5. Identify and add new and existing kerbside properties to glass recycling collection routes
6. Review dry mixed recycling materials collected within the household blue bins
7. Add new public recycling points to recycling collection routes
8. Complete remediation and restoration works at Cathkin landfill site
9. Provide environmental monitoring and aftercare plans for all closed landfill sites

Reduce, re-use, recycle, and recover



National re-use household items

Reduce and re-use

Preparing for re-use is an activity when products or components that have become waste are checked, cleaned or repaired. This means they can be re-used for their original purpose without further processing.

Previous and current re-use initiatives

Glasgow has worked in partnership with the furniture re-use sector by allowing access to our four household waste recycling centres (HWRCs) to recover items of furniture that are able to be saved.

Several bike re-use organisations collect bikes every two weeks from the HWRCs.

The council was actively involved in the first 'Pass it on Week' campaign in 2015 (managed by Zero Waste Scotland). This initiative was created to encourage individuals to donate unwanted items to charity, swap belongings with friends, and purchase second-hand goods in a bid to save money and reduce the number of reusable products that end up at landfill.

New re-use initiatives

The council regularly receives requests from third sector community organisations to collect goods for re-use from the HWRCs.

The number of organisations has grown within the city and there is now more capacity in this sector.

The introduction of Revolve (re-use quality standard for shops who sell second hand goods in Scotland) has added a degree of quality, reliability and professionalism to the sector and the number of organisations applying for the Revolve accreditation in the city is increasing.

Glasgow is seeking to introduce new initiatives to divert more material from landfill and increase the quantity of goods re-used.

National re-use phone line

The dedicated national re-use phone line is funded by Zero Waste Scotland with the aim to capture unwanted bulky furniture and white goods items in good condition.

Householders are encouraged to call the dedicated line directly on 0800 0665 820, rather than phoning the council's bulky waste service.

The council collects over 450,000 items each year through its bulky uplift service, of which a proportion could be used again.

This project seeks to increase the tonnage of material re-used and diverted from landfill, support local third sector organisations, and reduce the number of bulky uplifts collected by council operational staff.

Tonnage successfully referred to ROs within Glasgow City Council area



Chart eight – Tonnage diverted for re-use through the national re-use phone line

Improvements to household waste recycling centres

There are four household waste recycling centres (HWRCs) at the city's four waste complexes.

The HWRCs provide householders with the opportunity to recycle and dispose of a wide range of materials.

Through funding from Zero Waste Scotland, improvements have been made to Shieldhall and Dawsholm HWRCs.

The council will appoint collection partners, who will be Revolve accredited, or equivalent, to collect re-usable goods from the HWRCs.

Repair and re-use hub

Glasgow City Council is acting as a lead partner within a consortium of third sector organisations who are seeking to develop a re-use hub within Glasgow.

A business case will be submitted to Zero Waste Scotland.

The aim will be to create a flagship retail space, shared between the re-use organisations, to provide an outlet which can **significantly increase the availability of high quality Revolve standard used items within Glasgow.**

The hub proposes to provide a 'one-stop-shop' for re-used furniture, white goods large WEEE, carpets and other flooring, soft furnishings and other re-usable household goods.

The project will also:

- Create new jobs
- Create new training and volunteering opportunities
- Support low income households
- Support tenancy sustainment for registered social landlords
- Increase financial self-sufficiency for third sector re-use organisations

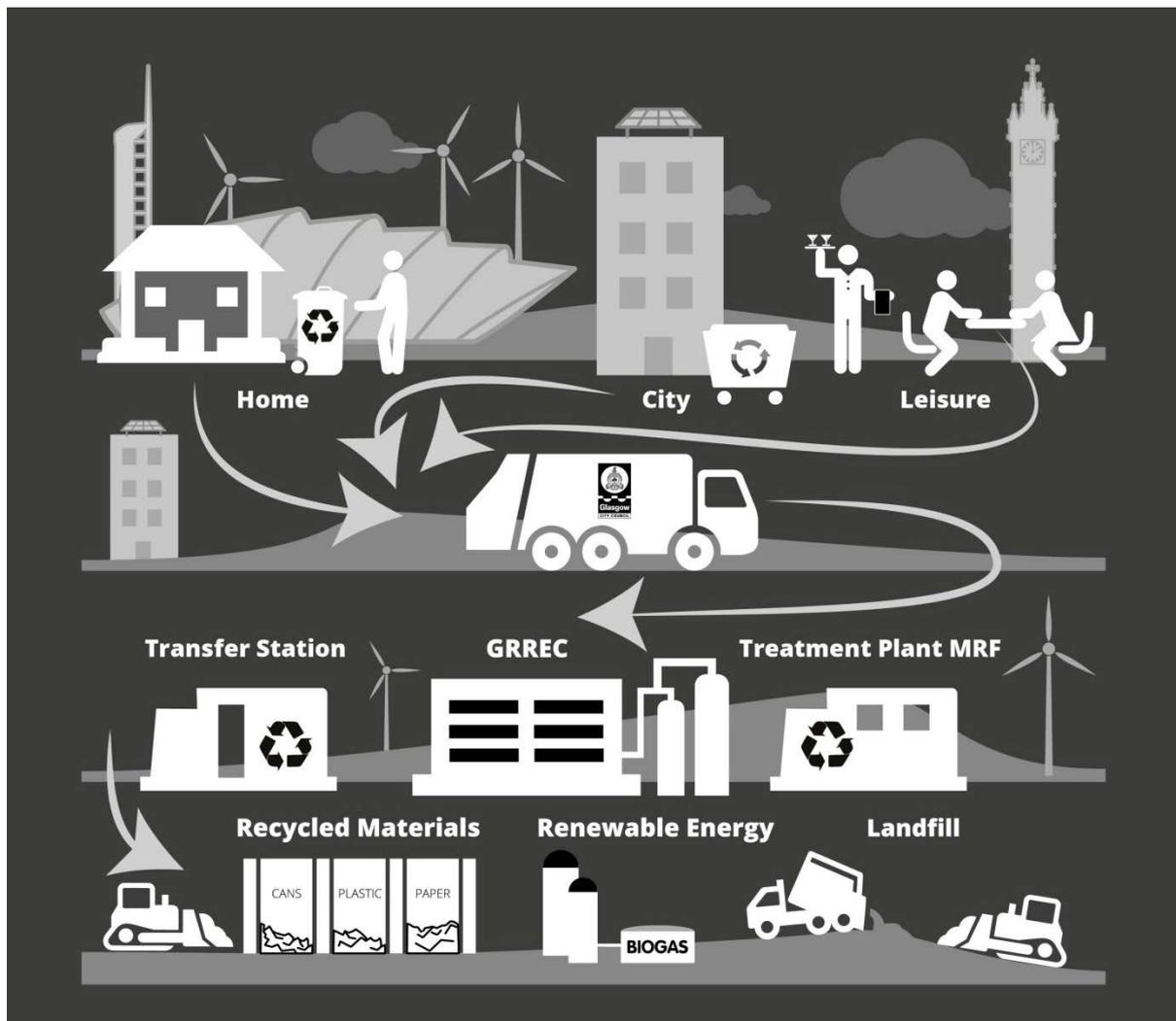
Home composting

Subsidised home composting bins were previously made available through the Waste Aware Scotland 'Compost at Home' campaign, which ran from 2004 to 2011.

This project was backed by all 32 Scottish local authorities and ran in conjunction with the national Waste Resources Action Programme (WRAP).

Subsidised bins stopped in March 2011 and the Scottish Government now focuses on providing advice and support to composters.

Home composting will be promoted where opportunities arise and in conjunction with the successful WRAP 'Love Food, Hate Waste' national campaign.



Glasgow's waste management processes

Recycling

Dry commingled mixed recycling waste - blue bin collections

Blue bins are provided for kerbside and flatted properties. The bins can accommodate paper, cans, plastic bottles and cardboard.

Two services exist for the different housing stock within the city.

About 113,500 kerbside properties receive a two weekly collection of the 240 litre blue recycling bin. Residents place their bins on the kerbside for servicing by the collection crew.

A refuse collection calendar advises the resident of the dates to put all bins at the kerbside.

About 152,500 tenement and flatted households receive a fortnightly collection of the 240 litre blue recycling bin.

Two 240 litre communal bins are provided for every 8 properties, or close. Collection crews collect the bins from the backcourts and take bins to the front of properties, or service lanes at the rear of properties.

About 34,000 high-rise properties receive a weekly collection of 1,280 litre blue recycling bins or 800 litre node bins. Node bins have four compartments which collect dry mixed recycling and glass in separate units.



Blue bins within a backcourt

Organic garden waste - brown bin collections

Brown bins are provided for kerbside properties with gardens. The bins can accommodate organic garden wastes.

About 105,000 kerbside properties receive a two weekly collection of the 240 litre brown recycling bin.

Residents place their bins at the kerbside for servicing by the collection crew.

Bins are collected from March to November with an additional collection in January for real Christmas trees.

Glass waste - purple bin collections

Purple bins are provided for kerbside properties. The bins can accommodate glass bottles and jars.

Approximately 105,000 kerbside properties receive a four weekly collection of the 140 litre purple recycling bin. Residents place their bins at the kerbside for servicing by the collection crew.

The service is contracted to an external partner.

Food waste collections

The Waste (Scotland) Regulations 2012 place a statutory duty on local authorities to arrange a food waste collection service to all households from January 2016. GCC is required to develop arrangements to progress compliance from this date.

Food waste collection pilot



The council's food waste pilot sticker

The council operated food waste collections for about 43,000 households across three property types – kerbside, flatted and multi-storey - in Glasgow from July 2013 to July 2014.

This allowed the service to evaluate each collection system before developing proposals for a citywide service.

The pilot is summarised as follows:

- Households received a separate weekly collection
- We communicated to every household
- We provided every householder with a container, known as a caddy, and liners to be used to contain the food waste
- We collected 2,145 tonnes of food waste and diverted it from landfill, which added 0.9% to Glasgow's recycling rate
- Kerbside properties diverted higher levels of food waste compared with other local authorities
- Flatted and high-rise properties diverted less waste compared with other local authorities
- Kerbside routes recorded weekly presentation rates, on average, of 27%
- Household surveys indicated that 79% of households were using the food waste service
- The collected food waste was processed at anaerobic digestion facilities

Development of a citywide food waste collection service

The pilot exercise has helped the council develop a suitable approach for rolling out a full food waste collection service citywide. The findings are as follows:

- We will collect food waste from kerbside properties every two weeks. Food waste generated by residents and presentation of bins showed that residents did not need a weekly uplift

- For residents in kerbside properties, the existing brown garden waste bin provides a suitable collection container for food waste
- We will provide residents living in both flatted and high-rise properties with communal bins for separate food waste
- We will collect waste from residents in flatted and high-rise properties every week since bins are shared
- We will provide all householders with a kitchen caddy to store their food waste
- We will provide all householders with liners to contain the food waste
- A clear promotional and marketing communication campaign is required to inform and encourage householders to support and promote the food waste recycling service

Proposed food waste collection arrangements

The food waste collection service will be delivered as follows.

- **Kerbside properties** – 113,500 properties will deposit food waste in the 240 litre brown bins. Food waste will be mixed with other biodegradable garden wastes
- **Flatted properties** - 152,500 properties will deposit food waste in a shared 240 litre bin sited in the backcourt
- **High-rise properties** –34,000 properties will deposit food waste in a shared bin sited in the refuse area

There are 300,000 residential properties in the city. We need to phase the introduction of the new food waste collection arrangements as follows:

- Phase one – kerbside properties
- Phase two – flatted and high rise properties

Both phases will require the distribution of caddies, bins, liners and communication material. Additional vehicles and staff will be required to support phase two.

Food waste will be processed through anaerobic digestion (AD), producing an agricultural fertiliser and a biogas, and in-vessel composting (IVC), which produces compost.

Bulky waste uplift service

A free bulk uplift service (for items which cannot fit into the general waste bin) is available to domestic residents in the city. There is also a 'pull out' service where bulk waste is placed on the pavement on an allocated day for collection.

The free bulk uplift service can be accessed by householders by:

- Filling in an online request form on the council's website at www.glasgow.gov.uk
- Using the MyGlasgow mobile phone app
- Phoning the council's Customer Care Centre – 0141 287 9700

Residents who call the customer care centre are encouraged to phone or contact the National Re-Use Line to get any suitable items collected by the third sector for re-use.

The customer care centre handles around 90,000 service calls every year, to uplift approximately 450,000 items.

When the bulk waste is collected and delivered to the waste complex it is kept separate from general domestic waste and commercial waste. The bulk waste is then taken to a re-processor where the material is sorted to recover recyclables to maximise diversion from landfill.

Electrical goods are taken separately to Easter Queenslie depot to be processed in compliance with the Waste Electrical Electronic Equipment (WEEE) Regulations 2002.

Bulky waste pilot

A pilot project is underway in the north east of the city, which aims to identify and improve operational efficiencies.

Residents requesting a bulk collection choose a specific date when the waste can be uplifted, subject to a time slot being available.

Crews are also using in cab technology to receive details of bulk requests and to record when jobs have been completed.

The pilot is also including specific route optimisation of collection routes.

Following a review of the pilot, successful elements will be rolled out to other areas of the city.

Public recycling points

Glasgow City Council provides a network of public recycling points across the city.

There are large bins and nodes for the separate collection of commingled dry mixed recyclables, glass bottles, jars and textiles.

The banks are serviced by a combination of the council's refuse collection vehicles, recycling partners and charities.

Not all sites have all the different types of recycling bins. There may be an opportunity to review our sites with a view to standardising the type of recycling bins at each site. This will be developed through our action plan.

Household Waste Recycling Centres (HWRCs)

HWRCs play an important role in enhancing the recycling and waste management services that Glasgow provides.

Significant tonnages of waste are managed at these centres. They provide opportunities for residents to recycle additional waste streams that are not collected within the kerbside or tenement collection services.

The council operates four HWRCs at the four waste complexes.

All HWRCs have been upgraded and accept a wide range of materials for recycling and disposal.

Resource recovery

Residual waste treatment - Glasgow Recycling and Renewable Energy Centre (GRREC)



GRREC under construction

A large amount of the residual waste in the city goes to landfill.

As a result of increasing landfill tax costs and new waste regulations, in December 2009 Glasgow sought a long-term, cost effective solution for residual waste treatment.

Procurement of the residual waste treatment facility was undertaken following a competitive dialogue process advertised via the Official Journal of the European Union (OJEU).

This process involved working with interested suppliers across a range of disciplines (legal, financial, technical), allowing them to refine their commercial offering to the council.

The proposals were submitted for independent evaluation by a panel of industry experts.

In December 2011, the council approved a 25-year partnership with Viridor to design, build, finance and operate (DBFO) a residual waste treatment facility to process the council's residual waste at the council owned property at Polmadie.

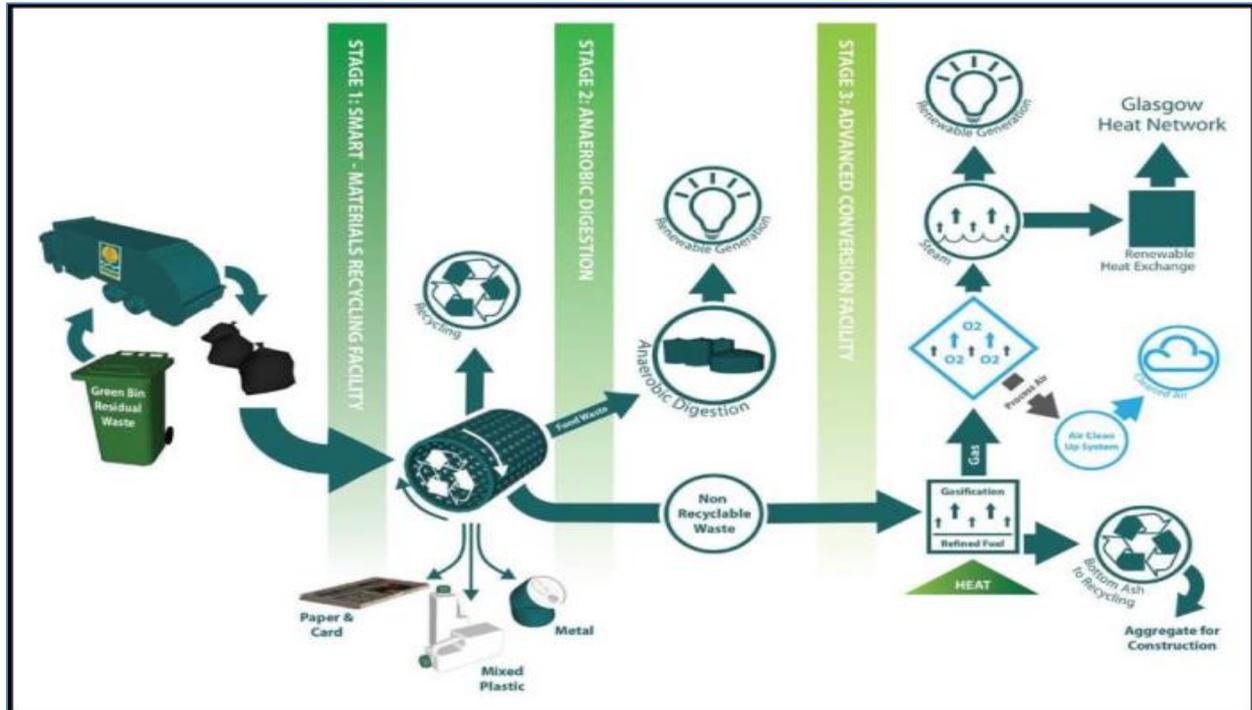
GRREC plant throughput and treatment process

The GRREC has been designed to process up to 200,000 tonnes every year of the council's residual "black bag" waste. This material will be primarily of domestic origin.

The council has guaranteed to provide Viridor 175,000 tonnes every year. The GRREC is due to receive waste in 2016.

The technology within the GRREC has been selected to maximise the extraction of high quality recyclables and minimise the amount of material sent for disposal at landfill.

The GRREC uses a three stage treatment process and the diagram below highlights the flow of waste through the plant.



The three stages of the GRREC treatment process are as follows.

- ✓ **Stage one:** A Smart Materials Recovery Facility (S-MRF) is the first stage of processing and involves a series of mechanical and manual processes which extracts recyclables (paper, plastic bottles, cans, and so on), prepares organic material for anaerobic digestion (AD) and produces a Refuse Derived Fuel (RDF) from the remaining material to fuel the Advanced Conversion Facility (ACF).
- ✓ **Stage two:** The organic material extracted by the S-MRF is prepared for use in the AD facility. This process involves mixing organic material with water to produce a sludge which is then transferred to an AD tank where organic bacteria break down the material over a period of approximately 14 days to produce a biogas. This gas is then captured and transferred to a Combined Heat and Power (CHP) plant where it is combusted to produce electricity and heat.
- ✓ **Stage three:** The ACF is the final stage of the process and guarantees a high level of landfill diversion.

RDF produced by the S-MRF is transferred to a series of thermal conversion units which heat material to very high temperatures in low oxygen conditions to produce a synthetic gas. This gas is then captured and fully combusted within a separate chamber to produce superheated steam which is transferred to a turbine to generate electricity. There is also potential to divert steam from the turbine to provide heating to support a district heat network

Landfill diversion and recycling performance

The GRREC will achieve a minimum landfill diversion rate of about 80% and a recycling level of approximately 18% of materials processed at the facility.

Although the GRREC will provide additional opportunities to recycle, the quality of material recovered through this process will not achieve the same standard as those collected within the household recycling services.

Therefore, it is essential that residents continue to separate recyclable material from the general waste stream.

Community benefits and legacy

Community benefits are a key element of the GRREC project and form an important part of the contractual agreement between the council and Viridor. The main community benefits are:

- the creation of 254 jobs
- to recruit a minimum of 10% of total labour workforce as new entrant trainees
- places for apprenticeships and work experience
- opportunities for local organisations to tender for business

A visitor centre has been constructed at Polmadie which will host visits by interested parties, including schools.

The visits will be structured to raise awareness of the importance of recycling and waste minimisation and link to the wider objective of delivering a “zero waste” society.

A further benefit provided by the project is sponsorship of the first two terms of the Go4SET educational programme delivered by the Engineering Development Trust (EDT).

The 10-week programme is provided to Glasgow secondary schools to encourage the uptake of further study and careers in science, technology, engineering and mathematics through work-based learning.



External illustration of the GRREC

Blochairn Materials Reclamation Facility (MRF)



Internal view of Blochairn MRF

The council manages 23,000 tonnes, every year, of commingled dry mixed recyclables (CDR), collected by the council from the 'blue bin' recycling collection service. The CDR consists of the following materials:

- Newspapers and magazines
- Mixed papers
- Cardboard
- Polyethylene Terephthalate (PET) plastic bottles
- High Density Polyethylene (HDPE) plastic bottles
- Steel cans
- Aluminium cans
- Non-target material (off-takes – waste fraction)

MRF plant throughput and treatment process

Blochairn MRF uses a range of mechanical and manual treatment processes to separate CDR into individual material streams which are then marketed to generate income for the council.

The mechanical process involves separating material into differently sized fractions which are then further separated into three-dimensional materials, for example, plastic bottles, cans, and two dimensional materials, for example, paper and cardboard. Overband magnets and eddy current separators separate steel and aluminium cans whilst optical sorters separate plastic bottles from the three-dimensional material. A final clean-up of material is then undertaken by manual pickers.

The off-take waste products are sent for energy recovery to various processors to produce a Refuse Derived Fuel (RDF).

RDF is a fuel produced by shredding and dehydrating municipal solid waste (MSW) with waste converter technology. Some off-take waste products are also sent to landfill.

Materials Marketing



Baled aluminium cans for re-sale after processing at Blochairn MRF

Recyclables separated by the MRF are marketed by the council in accordance with an approved procurement method to generate an income to the council.

These materials are typically purchased by the re-processing markets for further refinement; and ultimately for use in the manufacturing industry as a replacement for virgin material.

Waste minimisation and quality management

There are many factors which influence the quality of recyclable materials extracted and the amount of off-take material produced at the MRF. Maintenance and calibration of processing equipment is vital to ensure an effective operation and the composition of input material is of critical importance since low quality material can both be difficult to process and degrades the overall quality of recyclables extracted.

Contaminated material within the blue recycling bins is high and a revision of the contamination policy will be undertaken as part of the service reform programme.

Reduce, re-use, recycle, and recover - considerations

- Promoting our re-use service and promotion of re-use within the city
- Valuable materials sent for treatment or landfill at high cost to the council
- Not all properties receive a recycling collection and unable to recycle valuable materials
- Low household recycling participation and capture rates
- Legal requirement to provide a household recycling service
- Inadequate number of bins provided in backcourts
- Brush hole covers on lids of blue bins at flat locations need replaced

Reduce, re-use, recycle, and recover – considerations

- Cost and time required to collect from tenement backcourts due to access issues
- Not all properties receive a garden waste or glass waste collection service
- Legal requirement to provide a household food waste recycling collection service
- High percentage of food waste in general waste bins being sent to landfill
- Communications to householders regarding public recycling site locations
- Public recycling sites not standardised. Unable to recycle a range of materials at all sites
- Inconsistency of the type and number of recycling banks at each centre
- Partnership working with community groups – many requests from third sector organisations wishing to gain access to sites to collect good for re-use
- Long opening hours at recycling centres not fully used from 8am to 8pm every day
- Accessibility of HWRCs for residents travelling on foot
- Promoting materials that can be recycled at HWRCs
- Potential requirement for additional HWRCs at different locations across the city
- Businesses currently permitted to use waste transfer stations, but not the HWRCs
- Residual waste contract obligation
- Contract management team required to manage GRREC contract
- High cost of treating MRF off-take material
- Unstable recycling income markets
- Under-utilisation of MRF capacity
- MRF plant efficiency
- High levels of contaminated materials presented at the MRF

Reduce, re-use, recycle, and recover – associated actions

10. Provide 100% blue bin stock for flats
11. Provide a solution for blue bin lid apertures in backcourts
12. Provide commingled dry mixed recycling blue bins to all new and existing kerbside properties
13. Provide a food waste collection service to all kerbside properties
14. Provide a food waste collection service to all flatted properties
15. Provide a business case proposal to establish a re-use hub within the city
16. Identify 50 new public recycling points
17. Add 100 new communal bins to public recycling points
18. Identify new materials and bin containment to be included at public recycling points and HWRCs
19. Enhance the 'Recycling on the Go' infrastructure within the city centre and parks
20. Investigate potential for additional household waste recycling centres in the city

Education and awareness

Residents who place their bins at the kerbside will receive a calendar every two years. The calendar will provide information on what they can put in the recycling bins.

Residents who live in flats have not received communications since the introduction of the recycling service.

A large amount of recycling material is still being put in the general waste bin, instead of the blue recycling bins, following findings from a recent waste compositional analysis, carried out in November 2014 and March 2015. This has an impact on the efficiency of the council MRF at Blochairn and the quality of materials that are sent to re-processing partners.

Current waste and recycling awareness activities include the following.

- Household visits and telephone enquiries to discuss recycling enquiries and complaints
- Promotion of waste and recycling services at open days and events
- Attending daytime and evening community council and residents meetings
- Monitoring household collection routes to identify promotional opportunities
- Delivering recycling literature to householders
- Household assessment visits to discuss requests for larger or additional bins
- Targeted campaigns such as Metal Matters (metalmatters.org.uk)

We will be communicating more with residents about the importance of recycling services.

A communication strategy will be developed with Zero Waste Scotland which will include marketing and promotion of all recycling services in the city. This will include the introduction of the new food waste collection service.

This strategy will be developed from September 2015 and will continue through 2016.

Our staff will be encouraged to promote waste and recycling awareness to householders, local community groups, schools and other organisations.

The Zero Waste Volunteer Programme, managed by Zero Waste Scotland, provides grant funding to organisations to organise community activities which assist in increasing household recycling and reducing household food waste.

In Glasgow the programme is delivered by the Wise Group and Glasgow School of Art.

The council liaises with volunteers at events where recycling and re-use initiatives are promoted.

Council educational establishments

Glasgow has approximately 75,000 pupils and 322 educational establishments.

- 110 nurseries
- 139 primary schools
- 30 secondary schools
- 43 Additional Support for Learning (ASL) schools

All schools receive a blue bin commingled dry mixed recycling service.

Our waste and recycling officers visit educational establishments to deliver recycling talks and to engage in recycling activities.

Schools embrace recycling activities and initiatives which contribute towards achieving and maintaining the ECO Flag award, which promotes environmental credentials. Clean Glasgow also supports schools to deliver litter action plans and community clean-ups.

Litter and recycling award

The council will be introducing new litter and recycling awards. These will be open to all Glasgow schools and community organisations. The aim is to raise general awareness of environmental issues.

▪ Recycling award

This will recognise the effectiveness of recycling within schools, through supporting and encouraging the school family to recycle

▪ Litter award

This will encourage schools and the wider community to become more involved in maintaining their neighbourhoods and will work closely with Clean Glasgow

All participating schools and community groups will receive an award certificate and prizes will be given to the overall winners.

Underserved groups – ethnic minorities

In 2013, a recycling communications project targeted ethnic minorities in the city, specifically Urdu and Chinese speaking communities.

The Council of Ethnic Minority Voluntary Sector Organisations Scotland and the council are working together so they can have a greater impact on engaging ethnic minority residents.

We are trying to make sure all our communities in Glasgow understand and engage with our recycling communication and promotional campaigns.

Education and awareness- considerations

- Regular recycling communication programme to residents
- An award scheme for educational establishments relating to recycling
- Inconsistent message to educational establishments
- Formal programme for visiting educational establishments
- Inconsistent message to community events
- Formal programme for attending community events

Education and awareness – associated actions

- 21.** Introduce litter and recycling award to all schools
- 22.** Attend community events to support and promote recycling and re-use
- 23.** Update the council website to promote re-use
- 24.** Train customer-facing staff to promote re-use
- 25.** Develop and implement an annual communications strategy for all recycling services
- 26.** Develop and implement a household food waste collection communication strategy

Innovation and Technology

In 2013, Glasgow secured £24 million of funding from the Technology Strategy Board, now known as Innovate UK. This was to allow us to explore innovative ways to use technology and information to make life in the city safer, smarter and more sustainable.

Cleansing and Waste Services use technology every day. Our aim is to review current technologies and also to explore technology opportunities in partnership with the Glasgow Future Cities programme.

The following section provides information on current technologies used by our service and also provides information on potential technology improvements.

Refuse collection and recycling system (RCRS) and TrackYou

Properties that are part of the managed weekly collection service receive a calendar every two years, detailing the day and date that bins should be placed out for collection.

This information is also available on the council's website. RCRS is the database which supports the public facing website and also holds data on all household waste collection routes.

Trackyou provides vehicle tracking information for refuse collection vehicles by tracking the satellite position of the vehicle.

Waste and Recycling Units (WRUs) are situated at the rear of the waste collection vehicle and collect household refuse collection information, for example, routes, bins uplifted, access difficulties and excess waste.

Both Trackyou and WRUs software systems are able to provide management information reports.

Gatehouse weighbridge system

The weighbridge software records all waste inputs and outputs at our transfer stations. Comprehensive management information is also used for statutory returns and performance reporting.

Route collection recording at our weighbridges is under-used and it will be reviewed as part of our action plan. This type of management information can help in identifying contamination by area as well as providing recycling and waste tonnage trends.

MyGlasgow smart phone app

The MyGlasgow app has been launched to make it quicker and easier for residents to report faults within the Glasgow area. The app also includes fly-tipping reporting and arranging a bulk uplift collection.

The app allows the council to keep residents informed with the status of their enquiry by providing progress reports and completion information.

The council aims to provide more information on our services, including:

- providing bin collection dates
- providing locations of public collection points for recycling

Route optimisation

The council has used route optimisation software which solves high density routing problems which have a large number of refuse collection points that are serviced regularly.

Route optimisation has been used for properties that are on the managed weekly collection service and has assisted with:

- reducing mileage to save fuel, tyres and maintenance costs
- cutting carbon emissions
- balancing workloads
- modelling new collection and delivery systems

Our tenement collection routes have not been subject to route optimisation and will be reviewed as a future action.

Bin chipping

Radio frequency identification tags (RFID) in domestic bins allow for monitoring of presentation rates to allow targeted communication campaigns. Tags also:

- record where bins are placed
- record when they are serviced
- provide service information to the customer

Tags are not widely used across the UK. They are expensive to introduce and have met with public and political opposition within local authorities that have introduced them.

Flymapper

The Flymapper pilot project began in 2013. The app allows field recording of incidents through a mobile application and the management of information through a central database. The app has provided the following advantages.

- records specific information and categories, geographically represented on mapping software
- presents a spatial distribution of incidents, scale and type of materials flytipped and a capacity for photographic records
- provides a better understanding of the true scale of flytipping
- is a much easier way to identify hot-spots and problem waste types
- incident information can be linked to targeted interventions, prevention measures and campaigns

The devices were distributed to the services' nine Rapid Response Teams (RRTs) in November 2014.

Flymapper will be used to identify fly-tipping trends across the city. This information will be used by Clean Glasgow to address the issue through education, engagement, enhancement and enforcement.

The main objective is to reduce the amount of waste being fly-tipped in the environment and maximise the opportunities for recycling.

Intelligent bins

The council has trialled the use of intelligent bins in the city centre.

These bins have 'fill level sensors' which can be accessed remotely. They are aimed at optimising collections to reduce operating costs and lower carbon emissions associated with transportation.

Pilot projects using solar compactor bins have an in-built solar panel to power an internal compactor. This allows the unit to hold up to eight times more waste than a standard street bin. The bin provides a significant reduction in both costs and frequency of collections.

The enclosed nature of the bin also:

- reduces litter-picking
- keeps vermin and birds away from rubbish
- decreases excess waste; and
- decreases street litter creating a cleaner public space for everyone to enjoy

The council is also trying to introduce technology to create an asset register of all street litter bins. This will help with creating intelligent collection scheduling and lead to more efficient use of council resources.

Although there are many advantages of introducing smart bins, a disadvantage is that they are expensive and may only be a feasible option if external funding sources are made available.



Street Cleansing -George Square

Digital transformation programme

The council's digital transformation programme aims to increase online service availability for the residents of Glasgow. It also aims to:

- offer a better and more convenient service by using different digital channels for example website, apps and mobile phone
- improve customer services

Over the next five years we will work in partnership with the digital transformation programme to help with providing new online services and improve customer experience.

Innovation and technology – considerations

- Using new technologies to improve our services
- Using new technologies to communicate with our residents and stakeholders

Innovation and technology – associated actions

27. Investigate options to use the MyGlasgow app to improve frontline services
28. Review database management for waste and recycling collections
29. Review current vehicle tracking technology
30. Review route optimisation options for all household collection routes
31. Support the council's carbon management team to ensure that the council explores a district heat network
32. Review weighbridge software and data waste collection systems
33. Review mobile technology opportunities
34. Review street litter bin infrastructure and assess potential for introduction of smart technologies

Customer First

Our customers include both internal and external stakeholders.

Internal stakeholders include all council staff, but especially frontline operational staff such as street cleansing staff, refuse collection staff and recycling centre attendants.

Our frontline staff engage with the public on a daily basis. They need both the equipment and knowledge to carry out their jobs safely and provide information on council services to residents and visitors.

External customers are our residents in the city, visitors, workers, commercial businesses, event organisers and contractors.

The council is responsible for providing waste collection services to 300,000 households, 5000 commercial premises and hosts and manages major events in the city which require waste management and street cleansing services.

Internal Stakeholders

Staff Training and Development

Our employees are trained to carry out their job in a competent and professional manner. The council invests in staff training and all staff complete induction and customer service training through the council's CARES Charter.

Our Daldowie Training Centre provides a base for staff training and our training courses are audited and accredited by external organisations.

All employees are required to complete a Personal Development Plan every year. Every employee is made aware of the council's objectives and how their function and team assist in meeting these objectives.

Development areas can include coaching, mentoring, shadowing, secondment or Glasgow On-Line Development (GOLD) training packs.

All employees also attend a health and safety course every two years. There are also a number of management and supervisory courses available to staff every year.

Our Daldowie training professionals have also been instrumental in the development of Scottish Waste Industry Training, Competency, Health and Safety Forum, (SWITCH).

Its purpose is to provide leadership for the resource management sector by working collaboratively to raise standards regarding health and safety, training, learning and development and technical competence.

The council also delivers in-house driver professional qualification training and makes sure that training modules reflect our services and meet the needs of our drivers.

Waste and recycling training

In 2015 staff from our HWRCs visited re-use organisations to understand the impact of increasing the tonnage of re-used goods from our recycling centres.

This training will be expanded to include other areas of our service. Recycling and refuse collection crews will visit the Blochairn MRF and the GRREC and we will raise awareness of important issues, for example, contamination in bins.

Health and Safety

The council's Land and Environmental Services has a health and safety management system in place to safeguard the health, safety and welfare of our employees and anyone affected by the job they carry out.

The service accepts the aims and provisions of the Health and Safety at Work Act, and the Management of Health and Safety at Work Regulations.

We also take steps to comply with all other relevant statutory obligations.

Work instructions and procedures have also been produced to cover all aspects of the waste and cleansing operation. These form part of the quality and environmental audit management systems (certified to ISO9001 and ISO14001) and make sure the service provided by the council is of a 'dependable quality'. The successful management of health and safety is based on the HSG65 model.

Our commitment to health and safety is demonstrated through the following measures.

- The provision and maintenance of a working environment for employees that is safe and without risk to health
- A comprehensive safety committee structure encompassing Health and Safety committees to consider policy and planning aims through to the service sector. This process assists in developing and maintaining a positive health and safety culture by engaging with employees
- The provision of professional health and safety services from the council Health and Safety Group to provide on-going professional advice, guidance on legislation, premise auditing and inspection services
- The provision of a comprehensive Health and Safety training programme for professionals, for planning activities and functional role training to achieve and maintain a high level of competence as detailed in the risk assessments
- A comprehensive risk assessment programme detailing the assessment of risks and the provision of written risk assessments for all significant activities

We have a dedicated risk assessment team which includes senior managers, corporate health and safety officers, training officers and experienced manual operatives. All operations within our service complete a generic risk assessment which is reviewed every two years.

Our refuse collection routes have also been risk assessed. Site specific risk assessments have also been carried out to comply with the Waste Industry Safety and Health (WISH) forum guidance from the Health and Safety Executive.

External Stakeholders

Customer Care Centre

The Customer Care Centre (CCC) is the council's multi-media contact centre. It is the single largest project completed as a result of the council's modernisation strategy.

The CCC was established to provide excellent standards of customer care and best value to the citizens of Glasgow. It provides a single point of contact for all enquiries relating to the services provided by the council. Call centre handlers need to be fully informed of all of our cleansing and waste collection services. Training has been provided as and when it is required, for example, the food waste collection pilot or the national re-use telephone line.

The CCC and LES have developed detailed Service Level Agreements which specify the quality and performance of service request handling.

In addition, The Customer First Digital Transformation programme aims to improve customer experience and encourage residents to use the appropriate channels to engage with our services.

Household Survey

The Glasgow Household Survey provides an opportunity for residents to feedback to the council on various aspects of the services we provide to residents.

Customer first - considerations

- Make sure all staff have the skills to deliver the needs of the service
- Guarantee the health and safety for all employees when delivering services

Customer first – associated actions

35. Develop and implement a training and development plan for all employees
36. Review health and safety policy for frontline services
37. Review back office management and clerical structure

Service Reform

Various service reform options are being considered to improve operational efficiency, increase recycling rates and manage reductions to annual budgets.

Managed weekly collection service for tenements

We provide a managed weekly collection service to residents who put their bins out for collection on the kerbside on the collection day.

The introduction of this service resulted in an increase in the council's recycling rate.

This was achieved as the frequency collection of the recycling bin was increased from four weekly to two weekly and collection of the residual waste bin was reduced from weekly to two weekly.

Residents in flats currently receive a weekly collection of their general waste.

A review will be undertaken to assess the options for introducing this service to residents within flatted properties.

Residual waste collection frequency and bin capacity

There are five local authorities in the UK that have introduced, or are trialling different collection frequencies for residual waste.

Glasgow will review the outputs from these local authorities to determine if the options should be considered for Glasgow.

Some local authorities have also implemented a change of bin capacity by reducing the size of the residual waste bin to encourage greater use of the recycling bins.

Edinburgh, Fife, Perth and Kinross and Angus councils have instigated changes to their residual waste collection by reducing capacity of residual waste bins. A recently published WRAP report¹ has highlighted evidence that local authorities which have a smaller residual waste bin capacity have higher recycling rates.

Collection of additional materials

Mixed papers, cardboard, plastic bottles and food and drink cans are collected in the commingled dry mixed collection service.

We will assess options to collect additional materials but it depends on various factors such as the development of markets, cost, quality and changes to processing facilities within the council MRF at Blochairn.

A food waste collection service is due to start in 2016 and will be provided to all households in the city by March 2017.

¹ WRAP - Analysis of recycling performance and waste arisings in the UK 2012/13



Excess waste

Excess waste policy

Excess or side waste is the practice of placing additional bags of waste or loose waste next to the waste bins.

The majority of excess waste is usually placed beside residual waste bins and is a result of waste not being correctly segregated.

The current policy was introduced to encourage residents to use their recycling bins to their full capacity.

Excess waste impacts on the waste collection service as:

- it interferes with the proper waste collection process, which means it takes crews longer to collect, is less safe, and costs more
- it is unsightly, causes litter, attracts animals and damages the local environment
- it has not been fully separated for recycling

A review of our excess waste policy will be carried out as part of our action plan.

Contamination policy

Waste compositional analysis carried out in 2014 and 2015 showed that 25% of material placed within the household blue recycling bins are contaminants, that is materials that should not be placed in that bin. This leads to:

- recyclable material being sent for further treatment or landfilled with increased financial cost to the council
- a reduction in the quality of material sent to re-processors to be recycled into new products
- processing issues at the Blochairn MRF

When collection crews service the recycling bins from kerbside properties, the contents of the bin should be inspected before lifting the bin.

If materials are present that are not meant to be in that particular bin, a contamination sticker should be applied to the bin informing the householder to remove these items before the next collection.

This is an informal guideline and a review of the guidelines and additional communication to residents is required to reduce the contaminated material placed within the recycling bins.

Household recycling charter and code of practice

In June 2015, the Scottish Government announced the development of a household recycling charter to develop consistent recycling collection services in Scottish local authorities.

Local authorities will be invited to sign up to the charter, which will be followed by a collaborative process to identify best practice within recycling services.

Bin provision policy

All kerbside properties are eligible to receive the following free recycling bins.

- One blue 240 litre recycling bin for co-mingled collection of paper, cardboard, plastic bottles and cans
- One brown 240 litre recycling bin for the collection of organic garden waste
- One purple 140 litre recycling bin for the collection of glass bottles and jars

General waste bins are also provided but a charge may be applied.

We regularly receive requests for additional general waste bins. We will consider providing additional bins in the following circumstances.

- Excess residual waste arisings due to the medical circumstances of one or more persons residing in the house
- Excess waste arising from a large number of persons permanently residing in the house

Additional bins will only be provided following a visit from council staff to make sure the recycling bins are at the property and fully utilised. New or replacement general waste bins will incur a charge to the householder.

Assisted collections are provided to householders who are unable to present their wheeled bin at the kerbside due to medical infirmity and where there is no able-bodied adult residing in the household.

The assisted service may involve the operative collecting the wheeled bin or refuse sack from the front door of the property.

The service will continue to assess assisted collection requests and will ensure this service is provided where appropriate.

New build developments and refurbishments require recycling and waste bins prior to occupation of the new property.

The council will develop a guide to assist developers on the basic considerations and requirements required for the provision of domestic waste management facilities.

This will guarantee that appropriate and well-designed provision is made for waste and recycling storage and collection services.

To deliver a clear and concise policy for the supply of waste and recycling bins for residents and developers within the city, a policy needs to be established which clarifies the circumstances where replacement bins, additional bins and charging would be applied.

Refuse collection calendars

Every two years a waste collection calendar is provided to residents who present their bins at the kerbside. The provision of calendars will be reviewed in conjunction with other related policies.

Garden waste collections

At present the council does not charge for the collection of garden waste from residents. Some local authorities in Scotland apply charges to residents who request a garden waste uplift.

A review of the current policy is required to deliver greater efficiencies for the council, however this may be superseded by the introduction of a food waste collection service in 2016.

Bulk waste collections

At present the council does not charge for the collection of the majority of bulk waste from residents. There are some exceptions for example, very large items or contractor waste arisings. A recent survey through the Scottish waste manager's network showed that nearly all other local authorities in Scotland apply charges to residents who request a bulky uplift.

A review of the current policy is required to deliver greater efficiencies for the council.

Public recycling points and HWRCs

A consistent policy on recycling bins and banks at public recycling points is required which may allow residents to recycle more materials at our sites. Increasing awareness of re-use in the city is also critical to our waste strategy.

At the moment four council HWRCs are available for use by residents within Glasgow.

Commercial organisations are not permitted access but are able to use the commercial weighbridge at our transfer stations.

Options will be assessed to determine whether it would be feasible to permit access for businesses to dispose of material for recycling through a chargeable permit scheme, to encourage local businesses to recycle.

A review of the current operation is required to increase recycling and re-use in the city.

Commercial waste

The council has a duty to arrange a commercial waste collection service, if requested. The council currently provides this service to over 5000 commercial customers.

The impact of recent legislation requires the council to review the current service provided to customers in order to deliver greater efficiencies for the council.

Waste disposal and waste transfer

The GRREC is currently scheduled to receive waste from GCC vehicles in 2016. At present our 'black bag' waste is taken to landfill, therefore a review of our waste disposal and waste transfer operation is required to deliver greater efficiencies for the council.

Street cleansing

The council uplifts three million street litter bins across 56 neighbourhoods city wide and collects and disposes of approximately 11,500 tonnes of street litter.

A review of the current operation is required to deliver greater efficiencies for the council.



Street cleansing operations

Service reform– considerations

- Evolving waste legislation
- Low household recycling rates
- Key recycling materials sent to landfill
- High cost of delivering our refuse, recycling and waste services
- Cost of providing calendars to kerbside residents every two years
- Excess waste being collected which does not encourage residents to use their recycling bins

Service reform– considerations

- No contamination policy in place for household bins
- Collection of recycling bins contaminated with non-target materials
- Cost of providing bins to residents and developers and bin provision policy
- High cost of delivering a free bulk waste service
- Collecting bulk items from backcourts is time consuming and labour intensive
- High cost of delivering a free service for bulk waste
- High cost of delivering our street cleansing and litter service

Service reform – associated actions

- 38.** Review waste collection services for kerbside properties
- 39.** Review waste collection services for flatted properties
- 40.** Review excess waste policy
- 41.** Develop and implement contamination policy for refuse and recycling bins
- 42.** Review Household Recycling Charter and provide input in the development of the Code of Practice
- 43.** Implement waste and recycling bin provision and bin storage policy
- 44.** Review waste collection calendars policy
- 45.** Review garden waste collection service
- 46.** Review bulk waste collection service
- 47.** Develop and implement policy on siting recycling banks at public recycling points
- 48.** Investigate options for permitting commercial organisations to use the HWRCs to recycle
- 49.** Implement re-use policy
- 50.** Review service options for the commercial waste service
- 51.** Review waste transfer station infrastructure
- 52.** Review waste disposal fleet operation
- 53.** Implement a waste delivery model for the GRREC
- 54.** Review street cleansing operation

Strategic Partnerships



Public recycling points – textiles recycling partners

The cleansing and waste service engages with many partners.

Zero Waste Scotland (ZWS) has provided the council with guidance and funding support when new services have been introduced.

ZWS has also provided funding to improve the council's recycling performance from 2016.

This funding will help to improve recycling bin infrastructure and implement a recycling communication strategy for residents which will increase the quality and quantity of recycling in the city.

Keep Scotland Beautiful (KSB) is an important partner as we undertake street litter monitoring with the Local Authority Audit and Management System (LEAMS). Clean Glasgow regularly engages with KSB on litter campaigns.

The council regularly engages with local housing associations (HAs), charitable bodies, registered social landlords (RSLs) and the wider council family (Arm's Length Organisation's) when introducing or changing services.

Contracts and third party support

The council uses third party providers to provide a waste management service across the city. This includes services required for waste collection, waste disposal, waste treatment and street cleansing functions.

The council also uses the contracts negotiated by Scotland Excel, the centre of procurement expertise for Scotland's local government sector. Scotland Excel develops and manages collaborative contracts on behalf of its members.

Scottish Materials Brokerage Service (SMBS)

The market for materials collected by Scottish local authorities and other public bodies is fragmented and does not provide best value.

In October 2014, the Scottish Government announced their intention to develop a SMBS. This would operate as a one-stop shop to assist in growing Scotland's reprocessing sector and to help local authorities and the public sector get a better deal for the recycled materials they collect.

The brokerage will be a partnership between local authorities, ZWS and Scottish Procurement and will be sponsored by the Scottish Government.

The council will follow the development of the brokerage service and assess potential for utilising the services when marketing recyclable materials from the collection services.

Strategic partnerships - considerations

- Maintaining good relationships with our key partners
- Making sure contracts benefit the council

Strategic partnership – associated actions

- 55.** Seek funding from ZWS to enhance current recycling services and introduction of new services
- 56.** Develop and maintain partnerships with ZWS, KSB, local HAs, charitable bodies, private factors, RSLs and the council family to improve all services

Performance Management

Key performance indicators

Performance indicators are a key tool for measuring performance across our services.

The core key performance indicators (KPIs) for the refreshed Waste Strategy are noted below.

- Percentage of household waste recycled and composted (verified by SEPA)
- Tonnage of household waste recycled and composted (verified by SEPA)
- Tonnage of household waste landfilled (verified by SEPA)
- Tonnage of household waste sent for recovery (verified by SEPA)
- Street cleanliness index score (LEAMS) (as confirmed by KSB)
- Waste collection cost (gross and net) (APSE)
- Waste disposal cost (gross and net) (APSE)
- Street cleansing cost (gross and net) (APSE)

Other performance indicators are also available for monitoring the progress of our services. In conjunction with our core KPIs, they will allow progress to be tracked against the wider council strategic priorities.



Waste compositional analysis at Blochairn MRF

Household waste composition analysis

Household waste compositional analysis assists in determining the amount of recyclable materials that are still left within the general waste bins. It also assists in determining contamination levels within the recycling bin i.e. material that should not be placed within this bin.

The most recent analysis was undertaken in November 2014 and March 2015.

The results of this analysis showed that 32% of the general waste bin contained items which could be recycled through our existing recycling bin collection services.

Analysis of this bin has shown that the level of contamination, that is, the percentage of materials that should not be placed within the bin, is around 25%.

Other materials, such as textiles, could also be recycled using our public recycling points or HWRCs. 29% of the general waste bin contained food waste.

Food waste will be diverted from landfill with the introduction of food waste collections from January 2016.

The Education and Awareness section highlights the proposed communication, marketing and promotional campaigns to encourage residents to place the correct recycling materials into the respective bins.

The aim is to increase the quantity and quality of recyclables presented at the MRF and to reduce the level of contamination in the current blue recycling bin.

Household waste recycling centres (HWRCs)

Our HWRCs accept a wide range of recycling materials.

However, it is recognised we can improve re-use and recycling at the centres by reviewing the operational efficiency, layout and destination of our materials.

This review is included in our action plan.

MRF sampling and monitoring

In 2015 The Code of Practice on Sampling and Monitoring at Materials Recovery Facilities was introduced by the Scottish Government.

This will place additional responsibility on the council to undertake analysis of the inputs and outputs from our MRF at Blochairn.

Compliance with the Code of Practice will become a condition of the waste management licence for the site.

The aim of the new guidance is to improve the quality of materials collected within our commingled dry mixed recycling collection service. We also want to improve the quality of materials that are sent to re-processors after they have been sorted at the MRF.

Sampling and monitoring will start from October 2015 and the results will be reported to SEPA on a quarterly basis.

The council will monitor the quality levels from recycling collection routes. Sampling of individual routes will allow the service to target specific routes and areas, and provide education and awareness recycling communications to these areas to improve recycling in the city.

Customer and business service reports

Customer and Business Services collect information and provide reports to operational management and staff. This allows management to monitor the performance of our services. The reports provide additional service information, for example, missed collections and complaints, and allow managers to improve the way services are provided.

This information is also used to inform key performance indicators.

Glasgow household survey

The council carries out a household survey each year.

The survey measures citizens' service usage; and also measures satisfaction of a number of key services provided by the council and Arms' length External Organisations.

The information is used for service improvement and strategy development. The survey is also used to evaluate important environmental issues perceived by the public.

Questions within the survey vary every year. The 2014 survey contained questions on the impact of the Clean Glasgow campaign and residents' satisfaction with the household waste recycling centres.

Satisfaction levels with refuse and recycling collection services and street cleansing are also monitored every year which allows longer term trends to be determined.

Budget monitoring

Monthly budget monitoring meetings of our service review all aspects of our service and scrutinise all aspects of budget spend including expenditure and capital.

The following areas of the service will be subject to review during the action plan.

- **Refuse collection** - review of this service will be undertaken which will seek to introduce operational efficiency savings and associated budget savings
- **Landfill** - there will be a future budget requirement for landfilling Glasgow's waste as GCC waste tonnage currently exceeds the level of contract tonnage sent to the GRREC
- **Waste transport** - there is an on-going need for waste transport (moving waste to the GRREC, transporting bulky and other recycling waste). This will form part of a wider review of the waste disposal service
- **MRF** – monthly performance review of tonnage, waste offtakes and the level of income received from recycling markets
- **GRREC** - the contract is under review with a view to determining future budget requirement
- **Street cleansing** – a review of this service will be undertaken which will seek to introduce operational efficiency savings and associated budget savings

A long-term budget requirement will be assessed following the wider waste strategy review.

Contract monitoring

Contract and framework performance management ensure our contractors are complying with the conditions of the contract and the council is receiving best value.

Due to the complexity of the GRREC project, a specific contract monitoring team will be established for the performance monitoring of the GRREC.

Local Environmental Audit and Management System (LEAMS)

The LEAMS monitoring standard is used by local authorities as an indicator for street cleanliness and is audited by Keep Scotland Beautiful (KSB).

LEAMS assists local authorities in meeting their street cleansing obligations by:

- Providing baseline information
- Providing a self-monitoring system to assess continuous improvement
- Providing independent audits of the monitoring process by local authorities
- Providing an annual validation by an independent body (KSB)
- Making information on street cleansing standards available in the public domain
- Allowing the comparison of results between local authorities
- Allowing for distribution of good practice between local authorities



Keep Scotland Beautiful undertaking LEAMS audit

For every local authority, four yearly surveys are carried out and graded according to the standards outlined in COPLAR. There are four grades of cleanliness:

LEAMS Grade	Grade information
Grade A	No litter or refuse
Grade B	Predominantly free of litter and refuse – apart from small items
Grade C	Widespread distribution of litter and refuse with minor accumulations
Grade D	Heavily littered with significant accumulations

Table five – LEAMS cleanliness grade

The aim of the LEAMS system is to achieve acceptable maintained standards of cleanliness (Grades A and B). Grade C and Grade D are considered unacceptable and must be cleaned within a specified period of time.

Performance management - considerations

- We collect a significant amount of information on the council's waste management services. However, better interpretation of the information is required which may provide opportunity to enhance performance and identify areas for improvement
- Volatile recycling markets
- Increasing service costs
- Council budget pressures affecting provision of key services

Performance management – associated actions

57. Review and monitor recycling and waste contracts
58. Monitor performance of HWRCs to identify efficiency opportunities
59. Undertake materials sampling and reporting at the MRF
60. Review the Scotland Excel framework for the marketing of MRF recyclable materials
61. Maximise available processing capacity at the MRF
62. Review and implement opportunities to reduce operating expenditure at the MRF
63. Review mechanical processes at the MRF and invest in new technologies
64. Monitor the GRREC process to make sure any opportunities to use available headroom are fully utilised
65. Monitor the GRREC process to pursue opportunities to improve recycling rates
66. Investigate potential for the GRREC to accept MRF offtakes
67. Establish a dedicated contract management and operational performance team for the GRREC contract
68. Review statutory reporting requirements for refuse and recycling services
69. Review statutory reporting requirements for street cleansing and litter
70. Manage the delivery of key performance indicators for refuse and recycling
71. Manage the delivery of key performance indicators for street cleansing and litter

Action Plan 2015 to 2020

Key priority	Action number	Measurable action	Start	End
Key services	1	Review residual waste bin infrastructure for flats	January 2016	Dec 2016
	2	Identify and add new and existing kerbside properties to commingled dry mixed recycling blue bin collection routes	October 2015	July 2020
	3	Identify and add new and existing flatted properties to commingled dry mixed recycling blue bin collection routes	October 2015	July 2020
	4	Identify and add new and existing kerbside properties to organic waste collection routes	October 2015	July 2020
	5	Identify and add new and existing kerbside properties to glass recycling collection routes	October 2015	Mar 2017
	6	Review dry mixed recycling materials collected within the household blue bins	October 2015	July 2020
	7	Add new public recycling points to recycling collection routes	October 2015	July 2020
	8	Complete remediation and restoration works at Cathkin landfill site	October 2015	July 2020
	9	Implement environmental monitoring and aftercare plans for all closed landfill sites	October 2015	July 2020

Key priority	Action number	Measurable action	Start	End
Reduce, re-use, recycle and recover	10	Provide 100% blue bin stock for flats	October 2015	March 2016
	11	Provide a solution for blue bin apertures in backcourts	October 2015	March 2016
	12	Provide commingled dry mixed recycling blue bins to all new and existing kerbside properties	October 2015	July 20-20
	13	Provide a food waste collection service to all kerbside properties	January 2016	March 2016
	14	Provide a food waste collection service to all flatted properties	April 2016	March 2017
	15	Provide a business case proposal to establish a re-use hub within the City	August 2015	Oct 2017
	16	Identify 50 new public recycling points	October 2015	March 2016
	17	Add 100 new communal bins to public recycling points	October 2015	March 2016
	18	Identify new materials and bin containment to be included at public recycling points and HWRCs	October 2015	March 2017
	19	Enhance the 'Recycling on the Go' infrastructure within the city centre and parks	September 2016	March 2017
	20	Investigate potential for additional HWRC sites in the city	September 2016	March 2017

Key priority	Action number	Measurable action	Start	End
Education and awareness	21	Introduce litter and recycling award to all schools	October 2015	Jan 2017
	22	Attend community events to support and promote recycling and re-use	October 2015	July 2020
	23	Update the council website to promote re-use	October 2015	July 2020
	24	Train customer-facing staff to promote re-use	October 2015	
	25	Develop and implement an annual communications strategy for recycling services	November 2015	March 2016
	26	Develop and implement a household food waste collection communication strategy	October 2015	July 2016
Innovation and Technology	27	Investigate options to use the MyGlasgow app to improve frontline services	September 2016	July 2020
	28	Review database management for waste and recycling collections	December 2015	Dec 2016
	29	Review current vehicle tracking technology	December 2015	Dec 2016
	30	Review route optimisation options for all household collection routes	December 2016	Jul 2016
	31	Support the council's carbon management team to ensure that the council explores a district heat network	April 2017	Mar 2018
	32	Review weighbridge software and data waste collection systems	October 2015	Jul 2016

Key priority	Action number	Measurable action	Start	End
Innovation and Technology	33	Review mobile technology opportunities	October 2015	Jul 2020
	34	Review street litter bin infrastructure and assess potential for introduction of smart technologies	March 2016	Mar 2017
Customer First	35	Develop and implement a training and development plan for all employees	October 2015	Feb 2017
	36	Review health and safety policy for frontline services	October 2015	March 2016
	37	Review back office management and clerical structure	April 2016	July 2016
Service Reform	38	Review waste collection services for kerbside properties	March 2016	July 2017
	39	Review waste collection services for flatted properties	March 2016	July 2017
	40	Review excess waste policy	March 2016	Nov 2016
	41	Develop and implement contamination policy for refuse and recycling bins	March 2016	Nov 2016

Key priority	Action number	Measurable action	Start	End
Service Reform	42	Review Household Recycling Charter and provide input in the development of the Code of Practice	January 2016	July 2016
	43	Implement waste and recycling bin provision and bin storage policy	November 2015	Oct 2016
	44	Review waste collection calendars policy	March 2016	July 2016
	45	Review garden waste collection service	March 2016	Nov 2016
	46	Review bulk waste collection service	November 2015	Sep 2016
	47	Develop and implement policy on siting recycling banks at public recycling points	November 2015	March 2016
	48	Investigate options for permitting commercial organisations to use the HWRC to recycle	March 2016	Aug 2016
	49	Implement re-use policy	January 2016	April 2016
	50	Review service options for the commercial waste service	November 2016	March 2016
	51	Review waste transfer station infrastructure	April 2016	Aug 2016
	52	Review waste disposal fleet operation	February 2016	July 2016
	53	Implement a waste delivery model for the GRREC	November 2015	March 2016
	54	Review street cleansing operation	April 2016	Dec 2016

Key priority	Action number	Measurable action	Start	End
Strategic Partners	55	Seek funding from ZWS to enhance current recycling services and introduction of new services	October 2015	Jul 2020
	56	Develop partnerships with ZWS, KSB, local HAs, private factors, RSLs and the council family to improve all services	October 2015	July 2020
Performance Management	57	Review and monitor recycling and waste contracts	October 2015	Jul 2020
	58	Monitor performance of HWRCs to identify efficiency opportunities	January 2016	Jun 2020
	59	Undertake materials sampling and reporting at the MRF	October 2015	Jul 2020
	60	Review the Scotland Excel framework for the marketing of MRF recyclable materials	November 2015	March 2016
	61	Maximise available processing capacity at the MRF	October 2015	July 2020
	62	Review and implement opportunities to reduce operating expenditure at the MRF	October 2015	July 2020
	63	Review mechanical processes at the MRF and invest in new technologies	October 2015	July 2020

Key priority	Action number	Measurable action	Start	End
Performance Management	64	Monitor the GRREC process to make sure any opportunities to use available headroom are fully utilised	March 2016	July 2020
	65	Monitor the GRREC process to pursue opportunities to improve recycling rates	March 2016	July 2020
	66	Investigate potential for the GRREC to accept MRF offtakes	March 2016	Nov 2016
	67	Establish a dedicated contract management and operational performance team for the GRREC contract	January 2016	March 2016
	68	Review statutory reporting requirements for refuse and recycling services	October 2015	July 2020
	69	Review statutory reporting requirements for street cleansing and litter	October 2015	July-2020
	70	Manage the delivery of key performance indicators for refuse and recycling	October 2015	July-2020
	71	Manage the delivery of key performance indicators for street cleansing and litter	October2015	July 2020

Glossary of Terms

Arms' Length External Organisations (ALEO) network of wholly and partly owned council organisations which now provide services to and on behalf of the council.

Association of Public Sector Excellence (APSE) is a not-for-profit membership based organisation dedicated to promoting excellence in the delivery of frontline services to local communities. They work with more than 300 local authorities across the UK to share information and expertise in services including; waste and refuse, parks and grounds, highways, street lighting, leisure, school meals, housing and building maintenance and strategic policy advice.

Bulk Uplift Collection of large household items which cannot fit into household waste bins.

Commingled Dry Recyclate (CDR) Collection of mixed recyclables (paper, cardboard, plastic bottles, food and drink cans) within the same recycling bin.

Environmental Protection Act (EPA) 1990 – Part two deals with regulations surrounding the controlled disposal of waste (household, industrial or commercial).

Glasgow Recycling and Renewable Energy Centre (GRREC) – From April 2016 general waste (black bag waste) will be treated at this facility.

Household Waste Recycling Centre (HWRC) a site provided for residents for the recycling and disposal of household waste. HWRCs, or recycling centres, are also known as civic amenity sites.

Keep Scotland Beautiful (KSB) is the charity that campaigns, acts and educates on a range of local, national and global environmental issues to change behaviour and improve the quality of people's lives and the places they care for. They are committed to making Scotland clean, green and more sustainable.

Managed Weekly Collections (MWC) Alternate weekly collections of general waste and recycling.

Materials Reclamation Facility (MRF) A facility to process waste for the purpose of recovering materials using a variety of processes to separate out different materials, ranging from manual sorting to advanced mechanical sorting techniques. The contents of the blue recycling bins are processed via this route.

Official Journal of the European Union (OJEU) The official compendium of EU legislation and other official documents of the EU institutions, bodies and agencies.

Rapid Response Teams (RRT) Dedicated council street cleansing teams charged with delivering flexible and responsive front-line services to communities to remove litter, fly-tipping and graffiti in open spaces.

Registered Social Landlord (RSL) Independent housing organisations registered with the Housing Corporation under the Housing Act 1996. They may be Industrial and Provident Societies, registered charities or companies.

Residual Waste Treatment (RWT) Facility to treat the general waste or black bag waste. This excludes the materials that have been separated out by householders for recycling.

Single Outcome Agreement (SOA) An agreement between Glasgow City Council and the Scottish Government which set out priority outcomes for Glasgow, and how the council worked towards achieving them.

Scottish Environment Protection Agency (SEPA) Role in protecting the environment and human health including environmental regulation, mitigating and adapting to climate change, monitoring and reporting on the state of the environment, raising awareness of environmental issues, engaging with the public through citizen science projects, and resolving environmental harms.

Society for Local Authority Chief Executives (SOLACE) Solace is the representative body for Chief Executives and senior managers working in the public sector in the UK.

Third Sector Organisations a term used to describe the range of organisations that are neither public sector nor private sector. It includes voluntary and community organisations (both registered charities and other organisations such as associations, self-help groups and community groups), social enterprises, mutuals and co-operatives.

Transfer Station Facility where waste is taken to after being collected by refuse collection vehicles where it is stored and bulked prior to onward transport for treatment or landfill.

Waste Compositional Analysis (WCA) a study that provides information on the weight of materials that are in a given waste stream and usually involves obtaining samples of these waste streams and sorting them into pre-defined categories which are then weighed.

Waste Management Licence (WML)/Pollution Prevention Control (PPC): Permit issued by SEPA where waste is either being stored, treated or disposed of. Issued to operators of waste management facilities to ensure that they do not cause pollution of the environment or cause harm to human health and which becomes seriously detrimental to the amenities of the locality.

Waste & Resources Action Programme: a registered charity funded by DEFRA that works with businesses, individuals and communities to achieve a circular economy through helping them reduce waste, develop sustainable products and use resources in an efficient way.

Zero Waste Plan (ZWP) sets out the Scottish Government's vision for a zero waste society. This vision describes a Scotland where all waste is seen as a resource; where waste is minimised; valuable resources are not disposed of in landfills; and most waste is sorted, leaving only limited amounts to be treated.

Zero Waste Scotland (ZWS) Funded by the Scottish Government to support the delivery of the Zero Waste Plan and other low carbon and resource efficiency policy priorities.

References

- 1. Glasgow City Council Waste Strategy February 2010
- 2. Scotland’s Zero Waste Plan June 2010
- 3. The Waste (Scotland) Regulations 2012
- 4. Kerbside Good Practice Guide September 2012
- 5. Safeguarding Scotland’s Resources: Blueprint for a More Resource Efficient and Circular Economy 2013
- 6. Analysis of Recycling Performance and Waste Arisings in the UK 2012/13
- 7. Duty of Care: A Code of Practice 2014
- 8. Code of Practice on Sampling and Reporting at Materials Recovery Facilities 2015

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Supporting Information

All supporting information can be found on our website:

<http://www.glasgow.gov.uk/recycling>





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