



Brunel
University
London



Brunel University Waste Management Plan

2022-2025

CONTACT INFORMATION

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Executive Summary

This plan provides an overview of the University's performance in regards to the management of the waste it produces and outlines Brunel's future waste management objectives and targets.

Over the past 5 years the University has taken a firm approach to strengthen its waste management processes with the aim of increase its recycling output. As a result, Brunel can boast that 98% of its waste it diverted from landfill and 47% of its total waste mass is recycled (as of 2019/20). Unfortunately, as the number of staff and students at Brunel increases, so does the University's waste output which makes finding new innovative ways of mitigating the increase in waste essential.

Brunel has adopted the widely used Waste Hierarchy to rank its waste and manage it in a way that has the least negative impact on the environment. Prevention > reuse > recycle > recovery > disposal outlines the approach in which the university manages its waste with prevention being the most favourable option and disposal being the least favourable.

Demonstrating Brunel's commitment to reducing its scope 3 emissions, 3 long term objective and targets have been set: continue to divert waste from landfill, achieve a 60% recycling percentage by 2025 and to reduce its overall waste output per head each year. Short term actions that support the longer-term objectives are outlined within the Waste Management Action Plan (WMAC).

This Plan feeds into the University's Sustainability Strategy and is reviewed quarterly by the Environmental Sub Committee. .



Introduction

Brunel University London (BUL) was awarded its Royal Charter in 1966. Now, more than 50 years later, Brunel boasts a family of around 15,000 students and 4,500 faculty members. Our mission - to bring benefit to society through excellence in education, research and knowledge transfer. By committing to our core values – being open and honest, fair and inclusive, determined and focused on excellence.

Climate change and sustainability are two key global issues that our species has been challenged with. A community of nearly 20,000 individuals, such as Brunel, can have a major impact on its local environment, and the planet as a whole. A clearly defined waste management plan is essential in directing the actions of that community towards a more sustainable future.

This plan has been created by not only utilising years of experience and data gathering in the HE sectors but also by working with service partners in the waste management sector to ensure the ambitions detailed hereafter are reasonable and realistic. It aims to outline Brunel University's objectives and targets in relation to waste management and to demonstrate its commitment to reducing the negative impact the University has on its environment.

This plan is aligned with the University's overall policies, aims and objectives as outlined in the Brunel University London 2030 Vision.

The University's waste management and recycling operations are delivered through contract service partners but overseen by the Site Services Department.

SCOPE

This plan encompasses the management of waste produced within academic, administrative and residential buildings situated within the main Brunel campus; typically referred to as Sites 1, 2 and 3.

The University's waste recording period runs from 1st August to 31st July, each year, in line with the academic year.

This plan does not cover waste produced during Estates projects, where a project is contracted to a 3rd party, however this plan should be provided to the service provider to enable them to align themselves as much as is possible to our objectives and targets.

Where this document refers to a recycling percentage, the stated percentage represents the total percentage of waste recycled when compared against all other waste streams, general waste, incinerated without energy and landfill.



Our Achievements (2016 to 2021)

DIVERSION FROM LANDFILL

Approximately 98% of Brunel's waste is diverted from landfill. This has been achieved by the increasing recycling opportunities and diverting the remaining waste to an 'Energy from Waste' plant (EFW) where the waste is incinerated to produce electricity.

HALLS WASTE

Recognising that a majority of the University's municipal waste is generated in Halls of Residence and that this is where a majority of the contaminations occur, we have introduced a team of operatives that collect, analyse and segregate each halls kitchen waste. The benefits of this are:

- Quality – by identifying contaminations before they are mixed with a larger load, we are able to safeguard a large portion of recycling and therefore recycle more.
- Financial - Allows us to identify contaminated waste streams early, before they reach the waste service provider, enabling us to avoid contamination charges.
- Engagement – Students are able to speak with the Halls Waste Team directly to gain feedback on their recycling and waste segregating performance.

ON SITE RECYCLING COLLECTION AND SORTING

Unfortunately, external recycling wheelie bins offer us no control in terms of what goes in them. There is no quality control prior to them being collected by the waste services provider and therefore any contaminations within one bin will contaminate the entire load of the collecting vehicle. For that reason, we have opted for their removal in lieu of a recycling collection service provided by the cleaning services provider. Individuals can leave their recycling in Brunel owned recycling wheelie bins local to their building, where it will be collected by the cleaning

team and quality checked. This allows us to increase recycling quantity and reduce contamination costs.

CONCOURSE WASTE AND RECYCLING

We have introduced combined waste and recycling bins along the main concourse, providing people with the opportunity to deposit their recyclables on the go. The bins are checked daily by the cleaning services provider, analysed, segregated before being placed in the relevant compactor.

CARDBOARD REBATES

Mixed recycling and flattened cardboard bins have been positioned outside buildings across campus which allow people to deposit their used cardboard so that it can be recycled. The cardboard is collected and baled at an onsite waste processing facility, prior to being sold on for a rebate. On average, each year, we produce 180 bales of cardboard, or 90 tonnes. Which generates between £3,000 and £5,000 of revenue.

FOOD AND GLASS WASTE COLLECTIONS

Food waste is one of the heaviest forms of waste that can be found in a general waste bin. Extracting this valuable organic waste from the general waste stream reduces the overall weight of the general waste stream, which saves money and allows us to recover the potential of the material through anaerobic/aerobic digestion. Food waste is collected from the following locations on campus:

- Staff kitchens
- Residential kitchens
- Catering outlets

On average we are sending 41 tonnes of food waste to an anaerobic digester each year.



BINLESS OFFICES

We have come away from the traditional under desk office bin and moved towards communal waste and recycling points in all buildings across campus. The single desk bin gave no opportunity to segregate recyclable materials, therefore these valuable materials were lost into the general waste stream. By offering a communal waste and recycling point, waste producers are tempted to put more thought into where they dispose of their waste. This allows us to capture more recyclable materials.

BATTERY RECYCLING POINTS

Battery recycling points have been introduced across campus which allow anyone who visits the University to deposit their spent batteries, either from work or at home, to divert them from the general waste stream into the WEEE stream where they belong. We send around 40 tonnes of used batteries to be recycled each year.

DISPOSABLE COFFEE CUP RECYCLING POINTS

Disposable coffee cup recycling points have been deployed in academic, administrative and catering areas to encourage people to recycle their cups rather than placing them in the wrong waste stream. The cups captured through this stream are recycled into various products, such as benches and reusable cups, therefore allow us to contribute towards a Circular Economy.

MATTRESS, DUVET AND PILLOW RECYCLING

Each year hundreds of used mattresses, duvets and pillows require disposal. Through partnership with the local council we have managed to recycle 100% of mattresses and over 60% of duvets and pillows. The mattresses are stripped down to raw materials and sent on to be recycled. The duvets and pillows are sent to local dog homes and homeless shelters to be reused. The remaining 40% of duvets and pillows are sent to an Energy from Waste plant to be incinerated to produce energy.

BRITISH HEART FOUNDATION

BHF have positioned 13 clothing banks across campus which allow people to deposit their unwanted cloths so that they can be reused or recycled. In 2019 the Brunel community deposited 2,642 bags of unwanted items which had a rough monetary value of £36,000.

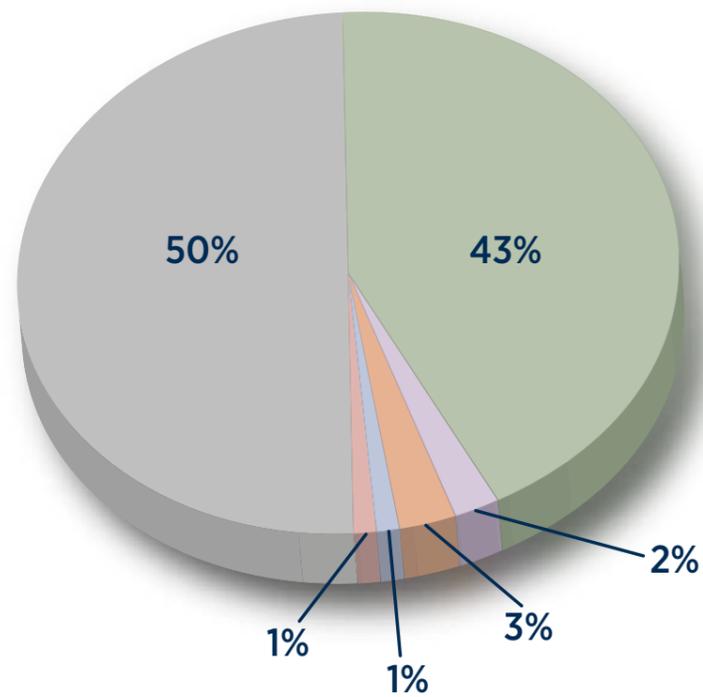
REUSING FURNITURE

Historically unwanted furniture would have been deposited into a 'Bulky Waste' skip and sent away to be incinerated through an Energy from Waste Plant (EFW). Since 2016 unwanted furniture has been stored and University departments have the opportunity to select what they need from there rather than purchasing brand new furniture. On average 760 items are reused each year, diverting approximately 1.3 tonnes from the general waste stream.

Our Performance

RECYCLING IN THE 2019 – 2020 ACADEMIC YEAR

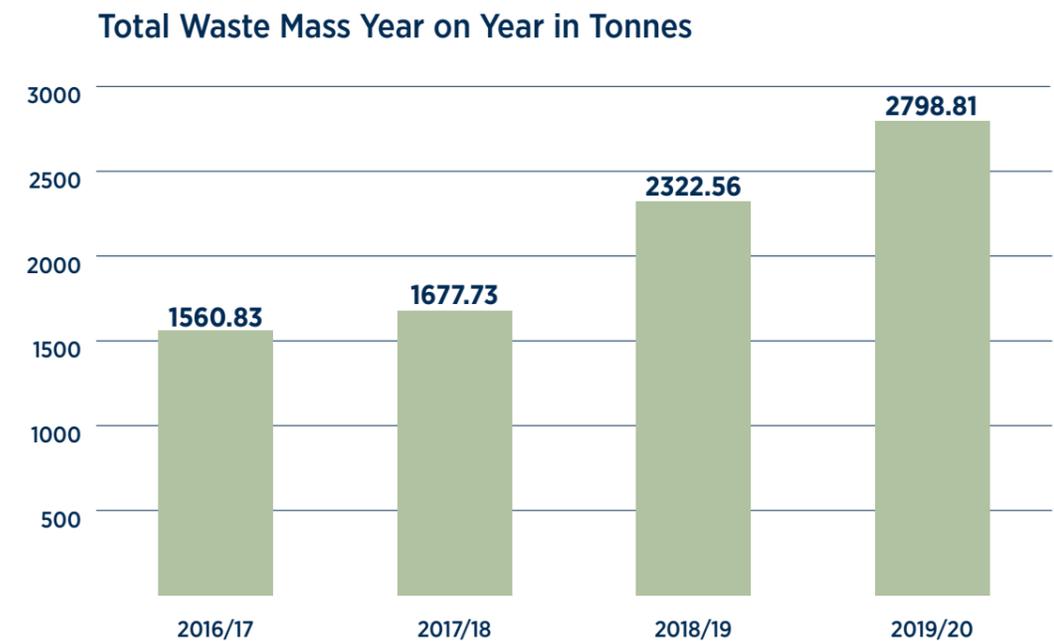
In the 2019/20 academic year Brunel achieved a total recycling percentage of 47% when compared against other non-recyclable waste types. The total waste mass generated for the year was 2,799 tonnes. The 2019/20 year will be used as baseline data to benchmark future performance against.



WASTE MASS	WEIGHT IN TONNES
Total waste mass recycled	1194.33
Total waste mass incineration	42.16
Total waste mass composting	90.00
Total waste mass anaerobic digestion	41.26
Total waste mass landfill	34.00
Total waste mass used to create energy	1397.06
Total waste mass total	2798.81

YEAR ON YEAR TOTAL WASTE MASS PRODUCED

As the University estate develops and the footfall increases so does the amount of waste the University produces. It is essential that we increase the waste prevention, recycling and incineration for energy capabilities to meet the needs of the University. The data below summarises the University's total waste output by year.

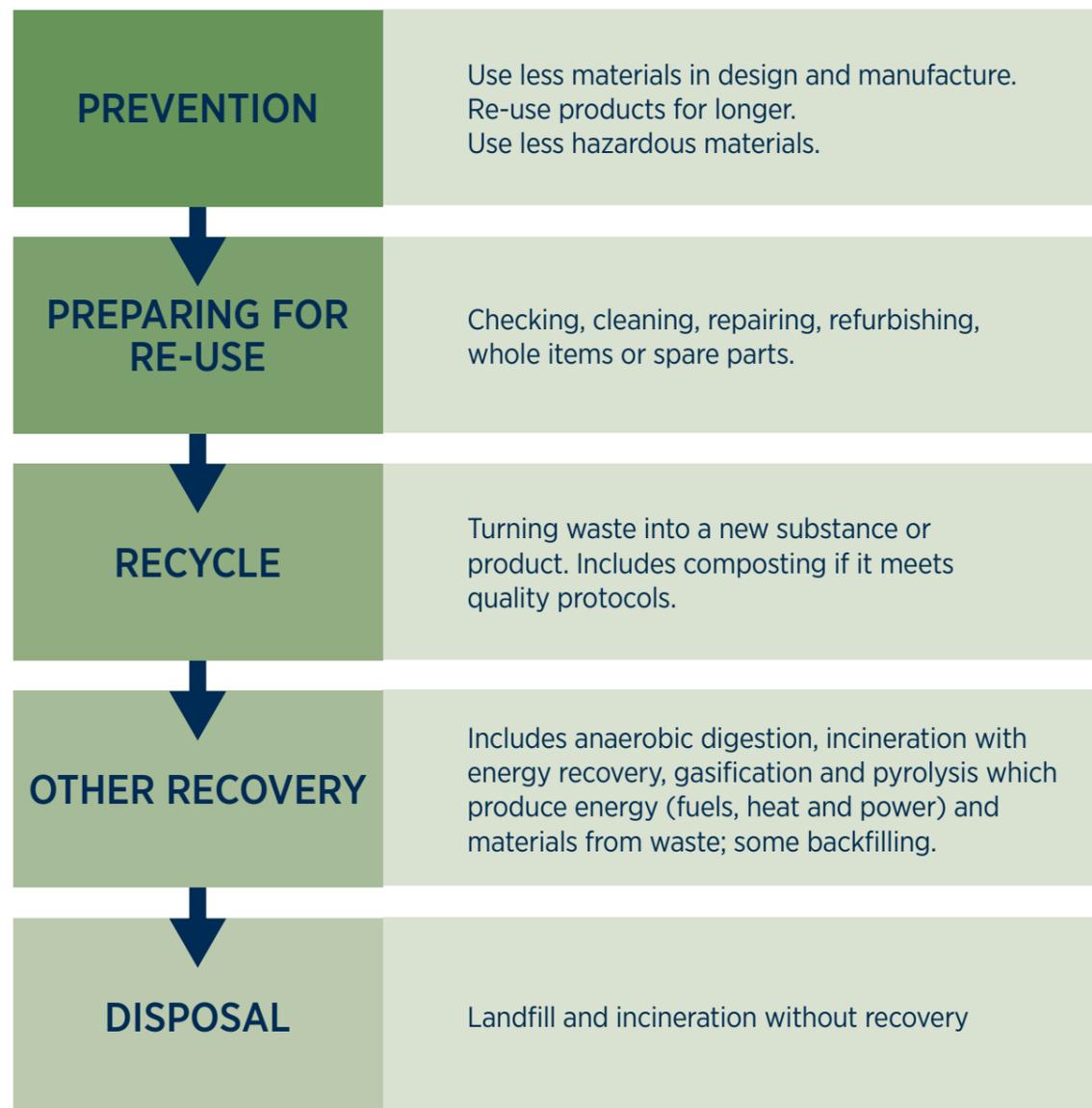


YEAR	TOTAL WASTE TONNES	INCREASE OR DECREASE YOY	% INCREASE OR DECREASE YOY
2016/17	1560.83	-	-
2017/18	1677.73	117	7.49%
2018/19	2322.56	645	38.43%
2019/20	2798.81	476	20.51%

Guiding Principles

WASTE HIERARCHY

At Brunel we have adopted the widely recognised Waste Hierarchy which ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. Once waste has been created, it gives priority to preparing that waste for re-use, followed by recycling, then recovery and last of all disposal (e.g. landfill).



WASTE AS A RESOURCE

The University recognises that waste is not only an environmental concern but should also be viewed as a resource. When managed correctly, waste can be sold for a rebate and recirculated into the manufacturing industry or good quality items can be donated or sold to be reused. The University will continue to look into ways to generate an income for the waste it produces.

LEGISLATIVE COMPLIANCE

There are various forms of legislation that impose a moral and legal duty on organisations that produce, transport, store or treat waste. These documents guide us through the process of dealing with our waste and our compliance with them is evidenced through our ISO 14001 accreditation, amongst others.

ENVIRONMENTAL

During the course of the University's activities various forms of waste can be produced. The University commits to disposing of waste in the most environmentally friendly option available; minimising the negative effects on the environment as far as reasonably practicable.

INNOVATION

An essential part of an effective waste management plan is the organisations ability to remain up to date with new technologies and innovative waste solutions. Through waste service partners, we are able to make use of the latest technologies that can maximise the potential of our waste and our procurement processes ensure that sustainability is a focus point when tendering new contracts.



Waste Streams

WASTE STREAM		DISPOSAL ROUTE	
General waste	food packaging, tissues, contaminated recycling	Recovery	Incineration to produce energy
Dry mixed recycling	plastic, paper, tins, cans, cardboard	Recycle	Materials Recovery Facility
Glass waste	bottles and jars	Recycle	Materials Recovery Facility
Cardboard	delivery boxes, non-contaminated food packaging	Recycle	baled and sold for a rebate
Food waste	leftover food, tea bags, fruit and vegetables	Recovery	Anaerobic digestion
Bulky waste	furniture, large items	Reuse or Recycle	Reused or shredded depending on quality
Aggregate	building rubble, stones and rocks	Recycle	Materials Recovery Facility
Metal	Metal	Recycle	Materials Recovery Facility
Printer/Copier toner cartridges	toner cartridges	Recycle	Materials Recovery Facility
Confidential waste	documents, data storage devices, books	Recycle	Materials Recovery Facility
Green waste	grass cuttings, branches, wood chippings	Recovery	Aerobic digestion
Hazardous waste	paint, oil, solvents, acids	Recycle, Recovery or Landfill	Depending on waste type and quality
Clinical/Sharps	laboratory waste, needles, broken glass, infectious waste	Recovery	Incineration to produce energy
WEEE	electrical equipment, fridges, freezers, TV monitors	Reuse or Recycle	Depending on quality
Tube lights	fluorescent bulbs	Recycle	Materials Recovery Facility
Engineering/motor oil	Engineering/motor oil Hazardous	Recycle	Materials Recovery Facility
Disposable Coffee Cup Recycling	Disposable Coffee Cup Recycling	Recycle	Materials Recovery Facility
Mechanical Sweeper Waste	detritus	Recycle	Materials Recovery Facility

Objectives and Targets (2022 – 2025)

The University has set strategic objective and targets that demonstrate its commitment to the management of its waste and the desire to continuously improve. Brunel's performance against these targets will be reviewed and reported on annually, and the targets will be reviewed and updated in 2025.

OBJECTIVE REFERENCE	OBJECTIVES	TARGETS
Landfill	To continue to divert untreated waste from landfill	100% diversion
Recycle	To achieve year on year recycling percentage improvements	60% recycling, when compared against all other waste streams, by 2025
Reduce	To reduce the University's overall waste output, per head, each year	Reduce total waste output, per head, each year.



Waste Management Action Plan (WMAP)

The Waste Management Action Plan supplements the Waste Management Plan 2022 – 2025 by detailing short term SMART actions that support the University's long-term waste management objectives. The WMAP is reviewed and updated annually by the Site Services Manager and progress is reviewed through the Environmental Sub Committee



Finance

In the 2019/20 year the University spent circa £525,000 on the management of its waste. This cost supported not only the disposal of waste, but also the introduction of innovations to drive improvements.

PRICE FLUCTUATIONS

Our service partners impose predictable price increases each year in line with CPI. We may also experience unpredictable price increases for waste disposal as the market for disposal and materials fluctuates.

Therefore, there is a financial risk to the University depending upon the global market. These risks can be mitigated as far as practicable by strong communication chains with service providers and regular updates from the waste sector.

LANDFILL TAX

In addition to the environmental reasons for diverting waste from landfill there are financial benefits as well. In 1996 the government introduced the Landfill Tax which was intended to persuade waste producers and manufactures to find more sustainable methods of waste disposal. In 2021 the landfill tax sits at £96.70 per tonne for the standard rate, which typically covers municipal waste types. By diverting 98% of our waste from landfill we are able to avoid circa £130,000 in taxes per annum.

WASTE AS A RESOURCE

In line with our guiding principle, waste as a resource, Brunel will continue to explore the potential to generate an income from the waste it produces. In the 2019/20 year the University generated circa £5,000 by segregating, baling and selling cardboard. This cardboard not only generated an income but diverted approximately 8 tonnes of waste from our dry mixed recycling and general waste streams, saving the university around £8,000 in disposal costs.

In summary a £13,000 saving was achieved in one year by segregating and bulking one type of waste material. This can be expanded to include more materials, such as plastics, to further offset disposal costs.

LOST RECYCLABLES AND CONTAMINATIONS

The disposal of general waste is almost double the cost of the collection of dry mixed recycling.

A recent waste analysis exercise revealed that, on average, 34% of our bagged general waste consisted of recyclable materials. By extracting this 34% from general waste we could reduce the University's annual waste cost by £35,000 per annum.

Measuring Performance

Using reports from service partners and information gathered from stakeholders, the Site Services Manager is responsible for collating the various sources of information into a report and submitting this to the relevant parties.

Our performance against the objective and targets will be reported through the Environmental Sub Committee which occurs quarterly. Additionally, waste data is supplied annually to the Higher Education Statistics Agency (HESA) via the Estates Management Record (EMR).



Challenges

CONTAMINATED RECYCLING

One of the biggest challenges with recycling is reducing contaminations. If food or a liquid is placed into a receptacle that contains otherwise good recycling, the entire contents of the receptacle would be damaged and would be diverted to general waste.

It's very difficult to prevent this from happening as recycling requires individuals to take responsibility to segregate their waste and clean their recyclables before placing them in the recycling bin.

To combat this challenge individuals must be communicated with, and the correct recycling practices explained. This raises awareness, the successful outcome of successful engagement would be for not recycling correctly to be taboo amongst the community.

COMMUNITY ENGAGEMENT

As mentioned above, community engagement is essential in bringing the community on board with the University recycling strategies. If engagement is poor, then recycling initiatives may be delivered without the community really understanding the reasoning or method that supports it. This could result in higher levels of contaminations or the initiative not being used to its full potential.

PARTNERSHIPS

Our waste management operations are delivered by our service partners. A virtuous relationship is important in order for the University's objectives and targets to be understood.

During the procurement of contracts, we ensure that our objectives and targets are explained and provide the service providers with an opportunity to comment on these objectives and introduce innovations to help us achieve them. Throughout the duration of the contract regular meetings are held to discuss performance and finance.

If communication breaks down at any point there is a risk that our objectives may become unaligned with the service provision.

FLUCTUATING REBATE PRICES

The waste industry can be an unpredictable industry, one example of this is when China tightened up on recyclable materials due to receiving too many contaminations. This effected waste exports across the globe and the value of recyclable materials took a hit due to lower demand.

We consider our waste to be a valuable resource but it's important to remain vigilant and manage our expectations in regards to rebates. The market for recyclable materials fluctuates regularly making it very difficult to predict an income and we have the added uncertainty that the amount of waste we produce changes throughout the year, and from year to year, depending on our activities.

Community Engagement

COMMITTEE

In order for the University's objectives and targets to be achieved it is essential that all departments and colleges have input and understand the steps to be taken in order to achieve them. The Environmental Sub Committee (EnvSC) is the perfect conduit to engage with stakeholders. This plan will be regularly reviewed by the EnvSC and stakeholders will have an opportunity to report on their own performance against our objectives and discuss any issues they may be facing. The committee is the correct forum to actively support the building of awareness, where possible, into the academic delivery and message as part of a larger sustainability strategy.

AWARENESS CAMPAIGNS

Periodically the Site Services management team, in partnership with its service partners, will run awareness campaigns which are aimed at promoting correct waste and recycling methods and initiatives. These campaigns will be at key times of the year, such as the start of each academic year to engage new students.

WEB PAGES

The Site Services web pages are readily available to anyone with a Brunel account. These web pages contain details about the Site Services operations and information on current and upcoming initiatives.

Partnerships

Our service partners have played an essential part in our success so far and in helping us achieve our sustainability objectives. The University makes use of their thorough industry knowledge and advice which guides us when setting our objectives.

Our service partners, regardless of which department they report to, are required to produce waste data on request to help us better understand our waste management position.



Governance

The Waste Management Plan reports to the University's Environment Sub Committee which is committed to oversee the development and implementation of the University's Environmental Policy and operation of the University's Environmental Management System.

The Environmental Sub Committee meet every quarter and the Site Services Manager is responsible for submitting a paper that updates the committee on the University's waste management performance.



