Foreword

The University of Bristol has agreed a new Sustainability Policy with bold plans to be carbon neutral, base its activity on circular economy principles and to offer opportunities for its students to learn about sustainability within their courses.

This builds on work that has seen carbon emissions fall by 17%, water consumption by 28%, diversion of 99% of waste from landfill and a bus service carrying 722,000 passengers. The range of sustainability activities is broad, from the obvious environmental areas of carbon and waste to community engagement, investments and procurement.

Of particular note is the launch of Bristol Futures, which mainstreams sustainability within the curriculum. Online courses are just the start for this ambitious program.

The next five years will see a transformation for the University, with sustainability at the heart of the University’s Vision and Strategy.

This report sets out the highlights of activity over the last year. I hope you find it interesting.

Martin Wiles
Head of Sustainability

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Sustainability in a glance
2016/17 - Sustainability at a glance

Absolute carbon emissions down by 17%, relative to income/staff and student numbers down by 35% from a baseline year 2005/06.

Water consumption down by 28% from a baseline year 2007/08.

Staff commuting via single occupancy car journeys fell from 19% to 17%.

Student bus service carried 722,000 passengers.

Students bringing cars to the University fell from 27% (2008) to 17% this year.

ISO14001 certification covering all activities including education delivery held for 5 years.

82% of all non-construction waste is reused, recycled or composted. The rest goes to fuel or hazardous disposal, less than 1% of University waste goes to landfill.

94% of construction waste is reused or recycled.

Hazardous waste disposed of via incineration has fallen by 16%.

Halls recycling rates up to 56% from 51% last year.

A newly launched lab equipment reuse scheme has seen 1.5 Tonnes of equipment reused.

Procurement team have achieved Chartered Institute of Procurement and Supply (CIPS) Corporate Ethics Mark certification.

BREEAM Excellent achieved at 8-10 Berkeley Square refurbishment.

Rare birds present on the University estate including House Sparrows & Stock Doves.

The university has achieved the Green Flag certification.

Over 30 teams have taken part in Green Impact, with an additional 12 teams piloting green impact in labs. UNESCO award won by NUS for Green Impact roll out.

Bristol Futures is underway, developing online courses for all students, including sustainability content.

Green Gown Award won for student engagement work.
1. Waste and Circular Economy

Under the European Waste Framework Directive, waste should be managed using a hierarchy with prevention as the first option and landfill as the least preferable option. The University has minimised landfill and utilises alternative technologies such as energy from waste (EFW) in line with the Directive.

The amount of general (residual) waste to landfill produced at the University has consistently fallen since our baseline year of 2007/08 and is now less than 1%, with 82% of waste being reused, recycled or composted.

This trend will continue to be challenged in 2017/18 as the University expands and maximises space usage. The amount of waste produced per FTE increased in 2015/16 and 2016/17, particularly bulky waste and hazardous waste.

In 2016/17 there was a 58% increase in materials recycled and reused from bulky waste clearances, attributed to the volume of office moves and refurbishments during 2016/17. In 2016/17 the amount of hazardous wastes requiring incineration also increased due to teaching and research activities.

However there were particular leaps in our waste target over the last two years as the University was able to retender contracts and make use of new technological solutions for waste management, with 99% diversion of waste from landfill achieved over the last two years. A more challenging target for waste management in current markets will be overall waste reduction.

Case Study

Reuse and Sustainable Procurement

The University expanded a reuse website, Re-Store, which re-homed directly within the University 12 tonnes of reusable furniture in 2016/17. In 2016/17 there has also been an increase in furniture remanufacturing at the University, with departments choosing to reupholster old furniture rather than disposing and buying new. These initiatives have helped the University avoid buying new furniture saving between £50k and £100k, saved disposal costs, minimised environmental impact, and reuse supports the local community.

In addition, the Bristol Big Give project, of which the University is a partner, has reused over 114 tonnes of student waste which would otherwise have gone to landfill, and has raised up to £200,000 for local and national charities. In 2016/17 we improved how we manage waste electrical items, in particular our unwanted IT equipment. The majority is now compliantly reused instead of being recycled, which is a more sustainable solution and helps us manage our adherence to the waste hierarchy.

A new Procurement Policy has also been agreed with sustainability embedded within it, including a new furniture contract which includes 10% of sales relating to remanufacture of furniture. This policy area is delivered by the University’s Procurement team.
2. Transport

The University’s Combined Staff and Student Travel Plan (2009-16) sets a range of targets for reducing single occupancy car trips and increasing use of sustainable travel modes (walking, cycling, public transport and car-sharing). Progress against these targets is measured through a series of regular staff and student travel surveys.

The student travel survey is scheduled to be repeated in early 2018. When it was last conducted in 2015, this showed the share of single occupancy car trips for the journey to study was in line with the travel plan target of 4%.

The staff travel survey conducted in late 2016 showed the long-term downward trend in car use was continuing among University staff for the journey to work. The share of single occupancy car trips fell to 17% from 19% in 2013, against a travel plan target of 15%. The sustainable travel modes showing the greatest increases over the same period were cycling (up from 14% to 17%) and bus (from 11% to 15%). There was also continued growth in the University’s car-sharing scheme, supported by incentives for car-sharing through the precinct car parking policy, with 61 new members added in 2016/17 bringing the total to 743, an increase of 8.9% on the previous year.

The contract to operate the University’s student bus service for five years from September 2017 was awarded to First Bus. The contract includes provision of a new U1 bus service with a dedicated fleet of low-emission double decker buses, and free travel for students holding a University bus year pass on four other First bus services linking the campus with the city centre, Bristol Temple Meads and other parts of the city. The bus service carries over 700,000 passengers a year.

Case Study

Cycling

One of the sustainable travel modes showing the greatest increase over the period 2013-2017 was cycling, up from 14% to 17%. This has largely been due to a wide range of measures to encourage cycling among both staff and students.

These include continued support for staff and student cycling through investment in new cycle parking providing capacity for 120 bikes, fortnightly free cycle clinics attracting around 500 staff and students during the year, a Cycle to Work scheme (enabling 86 members of staff to purchase new bikes in 2016/17), and access to free cycle training and loan bikes. The University also supports a thriving community of cyclists through a Bicycle User Group with nearly 1,700 members, a further 10% growth on the previous year and now believed to be one of the largest such groups of all UK universities.

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As the Sustainability Policy is being renewed, we have been redeveloping the Carbon Management Plan into a Carbon Strategy to address emissions in all the University's space, including leased space, and to put us on a path to net zero emissions from Scope 1 & 2 emissions, measured by ISO 14064, by 2030, and to inventory and control our Scope 3 emissions better.

The plan includes:

- Action to reduce costs
- Action to reduce reputational risk and to satisfy funders and potential funders
- Linking the installation and implementation of measures with didactic opportunities for students and research opportunities for the academic community
- A focus on highly serviced areas
- Actions to increase our purchases of power and heat from lower carbon sources

A key target of this is a plan to reduce the total energy consumption per FTE at buildings over which we have operational control by a third from 2014/15 to 2030, chosen because it is a year by which our major recent buildings, such as Life Sciences, were in use, which experienced 20-year average temperatures. In terms of progress on this, we are currently 6% down on this baseline, against a 33% target. From April 2017, we began to buy electricity for our contracted sites from UK wind farms, via our supplier EDF.

The University’s water consumption in 2016/17 was 28% below consumption in the baseline year of 2007/08, despite a major leak at Hiatt Baker and increasing numbers and activity. In the last decade, many reductions have been due to the wholesale replacement of the ring mains at the Precinct, Langford and Stoke Bishop. The avoidance of tap water being used for cooling electrical equipment is now a key strand of our water conservation and cost-saving activity.
The Sustainable Labs initiative goes from strength to strength, and in the last year helped realise savings of £86,650. This includes energy and water saving activity, and procurement savings.

In energy and water management, equipment replacements of drying cabinets and ultralow temperature freezers (ULTs) are saving £4,625 per year. Water savings incurred from replacing tap-to-drain cooling with recirculating chillers amount to 19,973 m$^3$ per year (NB there is an additional electricity load from chillers amounting to £11,650, therefore there is a net benefit of £28,455).

Implementation of an equipment sale service has diverted 1.5 tonnes of electrical waste from biomedical labs for reuse, the equivalent of 4.89 tonnes carbon dioxide. The Biomedical Department has already received over £750 in rebates but are expected to receive £3,000-5,000 over the next year. All science departments are due to use the service in 2017/18.

In 2016/17 S-ProcLab was created, which is a partnership between Technical Managers, Sustainability and Procurement that provides strategic centralised processes to our institutional purchasing and includes sustainability within tender specifications. The group successfully contracted a wireless alarm and monitoring system, saving the University an estimated £5,000 per annum, and persuading lab users to increase the temperature of their cold storage to increase sample security, thus saving energy.

4. Sustainable Labs

Case Study

Staff and Student Engagement

Staff and student engagement is key to the success of Sustainable Labs.

- Staff receive quarterly updates on the Sustainable Labs Initiative through an e-newsletter, and regular communications via social media and emailing platforms have been maintained.
- The Sustainable Labs Network meets termly and has grown to 39 members, with 19 Sustainable Labs Leaders across the University; the group collaborates on University-wide projects.
- Green Impact Labs awards scheme – the first year of the new sustainability and efficiency framework for labs had 20 teams signed up. Twelve teams achieved Green Lab Accreditation status, with two achieving Gold and Platinum accreditations. This scheme increases collaboration across campus and enables behaviour change in labs, as well as improved but non-quantifiable water, energy and waste management. Student interns and 12 volunteers took part in the scheme, working directly with academic and technical staff to audit and support their accomplishments. The awards ceremony took place in conjunction with the annual Technical Conference.

Looking ahead, Sustainable Labs aims to increase engagement across the campus by increasing the number of Green Impact Labs teams to 25. This will be achieved via regular communications, campaigns, training and Sustainable Labs Network events. It also aims to set up annual student Living Lab projects based in labs, with Estates/Sustainability and academic staff as stakeholders. This should be in place by 2019 and tie in with the Sustainable Futures element of Bristol Futures.
5. Communications and Engagement

A full communication plan was implemented during 2016/17 and included a number of campaigns and initiatives to engage and collaborate with a broad range of staff and students across the University, in addition to engagement with the wider sector.

The communication plan included the running of Green Impact in 30 departments, a joint Green Impact scheme with the Bristol University Hospital Trust and North Bristol Health Trust, as well as within GP Practices.

Members of the Sustainability team spoke at a number of staff events, including the Technical Managers Conference and Site Services Supervisors meetings. Transport ran a number of events around personalised travel planning and continue to do so, as well as running a bike user group with over 1,000 members and Facebook pages. Sustainability is also involved in the welcome lunches and fairs for new staff.

Student sustainability groups ran a number of successful campaigns and events including the ‘Student’s Guide to Sustainability’ conference, Sustainability Month, and Fossil Free Bristol Uni. A member of the Sustainability team spoke at Bristol Hub’s Careers Beyond Profit Fair for students. New Facebook and Twitter accounts for Sustainability have been set up and continue to build a wide audience.

Further communication activities are noted within other sections of this report.

Case Study

Education for Sustainable Development, Bristol Futures and Student Engagement

Education for Sustainable Development Team member Dr Aisling Tierney worked with the Academic Partnerships & Quality Office (AQPO), within the Bristol Futures initiative, to develop plans for curriculum change across all faculties within embedded and option/open units. Substantial curriculum reviews were undertaken, including ESD-specific work on ESD content within units utilising the Unit and Programme Management System (UPMS). This work continues into 2017/18.

Bristol SU organised a Student Advisory Group for Bristol Futures consisting of interested students and staff members developing the scheme.

A team of academics, working with Dr Aisling Tierney, worked within the Bristol Futures initiative to develop a “Sustainable Futures” massive open online course (MOOC), to be hosted on the FutureLearn platform from February 2018. The course will be made available worldwide, for free.

Content filmed in Albania formed part of the MOOC material. As a result of this work, contacts made with local government officials lead to the development of an interdisciplinary initiative for eco-tourism and sustainable heritage. A pilot project, over two field seasons, is scheduled for 2018.
6. Biodiversity

This report focuses on the University’s Biodiversity strategy consisting of the following six steps: ‘Identify and Record’, ‘Evaluate’, ‘Monitor’, ‘Conserve’, ‘Enhance’ and ‘Communicate’.

The University maintains over 200 acres of parks and gardens to a high standard. Having been awarded a Green Flag in 2016, External Estates have retained it in 2017.

External Estates have adopted the Phase ONE Habitat Survey Toolkit - Oxford Brookes University over ArcGIS. These allow the production of “effective, JNCC colour coded maps in the field and export them directly to reports or as GIS supported files for further processing in your chosen GIS packages”. They are also currently developing a suite of evaluation tools for its landscape ecology and will ultimately include (for example): Habitat mix; habitat scale; biodiversity richness; conservation values (species specific); species trend analysis.

New green roofs have been established on the University’s Queens Building. We have also launched ‘My Wild University’, a collaboration with the Avon Wildlife Trust with an annual meadow in the Royal Fort Garden. Gardens and Grounds team continue to provide activities which attract local community groups, clubs and schools. The Botanic Garden ran a series of high-attendance events throughout 2017 on the theme of pollination.

Surveys of key indicator species were completed once again in 2017 for birds on three University sites (this is the fourth year running) using Pollard methodology used by the UK Butterfly Monitoring Scheme.

**Birds:** “Two species of conservation concern were recorded in these surveys for the first time in 2017. House sparrow, which is known to have occurred in all three areas in the recent past, was recorded at Clifton Wood. The other newly recorded species, stock dove, is not known to have been present previously. It is notable that nuthatch… was recorded at Stoke Bishop after being absent in 2016.

The most numerous species of conservation concern at the Precinct are herring and lesser black-backed gulls, which may come as a surprise to those dealing with their increasing urban populations. However, the much larger coastal populations are declining rapidly.”

**Butterflies:** “This survey recorded an average of 63.75 individual butterflies per visit in 2017, compared with an average 14.2 per visit in 2016. The three most numerous species were meadow brown, small skipper and marbled white.

“The results…suggest that there has been a significant increase in the value of the meadows for butterflies and other insects. Although this increase in the abundance of butterflies is generally in line with provisional results from Butterfly Conservation’s national monitoring scheme, they do suggest that the meadows have [at least] maintained their value for butterflies.”
What Next?

- Making the new Temple Quarter development one of the most sustainable developments in the region and the sector.
- Designing the new Library to achieve the highest sustainable design certification (BREEAM Outstanding).
- Introducing Whole Life Costing principles to procurement and project activities.
- A major program of fume cupboard refurbishments aiming to save £100,000s.
- Development of chemical and cold storage inventory systems.
- Collaborating with UKCRIC research into smart building control programs.
- Delivering more low energy lighting solutions.
- Starting phase one of ‘Zero Carbon Langford’.
- Communicating with an even larger number of staff and students across the University through a number of campaigns and events to increase engagement with sustainability activities.

We have bold plans to be carbon neutral, eliminate waste, reduce transport congestion and enhance our living campus leading to the University being one of the most responsible organisations in the sector and region.

The University has a Sustainability team which helps to deliver these and many more Sustainability actions. You can find out more about what they are doing and what you can do by visiting www.bristol.ac.uk/green

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