



University of
Nottingham
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Operational Sustainability Report 2022-23

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3rd place for the university in global ranking



In December 2022 the university was ranked 3rd in the world in a list of the most sustainable universities.

The UI Green Metric, produced by the Universitas Indonesia, is the only university ranking in the world that measures each participating university's commitment in developing an 'environmentally friendly' infrastructure. The rankings look at six indicators: setting and infrastructure, energy and climate change, waste, water, transportation and education.

Since first taking part in 2010, Nottingham has consistently been placed in the top four. Over 956 universities from 84 countries took part in the 2022 rankings.

New QS World University Sustainability Ranking



In October 2022 the QS published its first Sustainability Ranking – the first time they have focused on social and environmental sustainability performance in higher education institutions.

Featuring 700 universities, this first edition of the rankings use a methodology comprised of indicators designed to measure an institution's ability to tackle the world's greatest environmental, social and governance challenges.

Indicators are split into environmental sustainability measures – including sustainable institutions, sustainable education and sustainable research – and social impact measures, which includes equality, knowledge exchange, educational impact, employability and opportunities, and quality of life.

Nottingham was positioned joint 118th in this ranking.

Energy and carbon



Over the last 12 months, we have seen our campuses increase in occupancy with more people on campus, and teaching and research across the estate getting back to pre-pandemic levels. Whilst a proportion of our university are working in an agile way, we continue to see rises in energy consumption.

There continues to be volatility and fluctuations in energy markets although prices have dropped significantly compared to the height on the global energy crisis. Whilst markets are falling, it is anticipated that they are unlikely to fall to pre-pandemic levels for some years.

We procure our gas and power through a partnership with The Energy Consortium (TEC) and have transitioned several of our water supplies to them, with the remaining supplies transitioning over coming months.

Procuring through a framework and having a forward purchase approach has reduced our financial risk in inflated markets. As markets move and fluctuate this protection reduced, as we will be required to purchase forward volumes within an inflated market. Based upon the annual benefits report produced by TEC, based upon £20,615,572 of spend through the framework in 2022/23 we realised in the region of £2.98 million of savings (made up of savings attributed to volume and flex versus fixed approach).

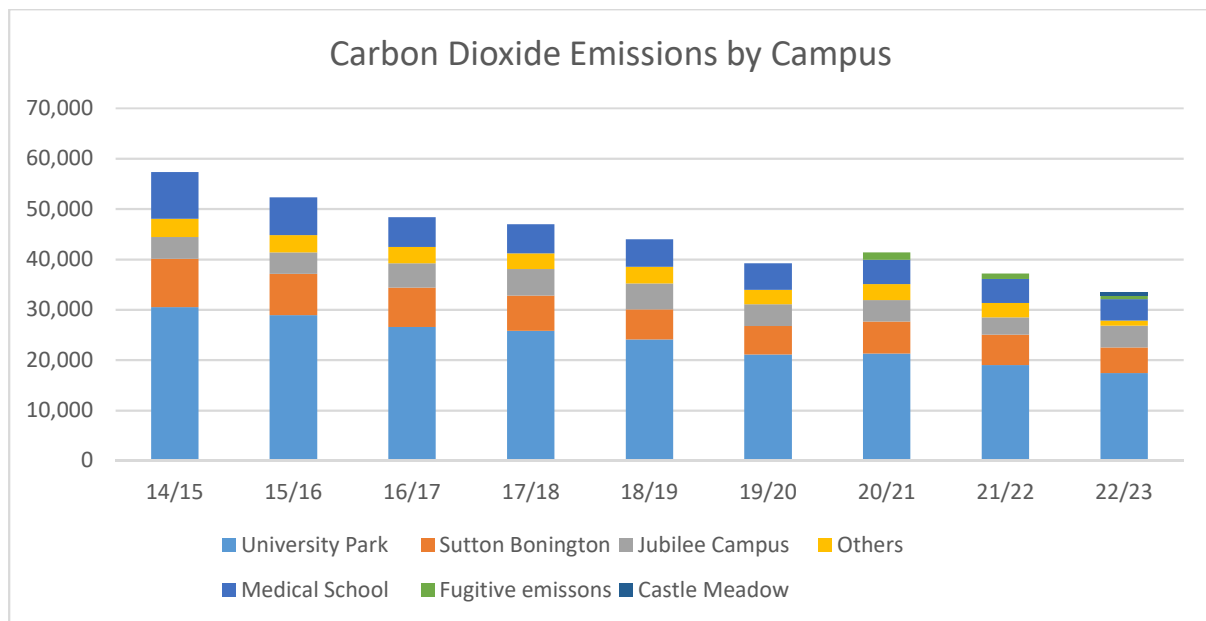
Work has accelerated this year to drive down energy waste. Several invest to save projects have been delivered as part of our Salix Revolving Green Fund Program. This included LED lighting upgrades, upgrading to high efficient air compressors and investment in ultra-low temperature freezers and chemical storage units. We have also carried out detailed energy surveys of our largest consuming buildings.

In 2022, we undertook a major refurbishment of the heating and ventilation system serving the swimming pool. This included the installation of a hybrid heating system and replacement heat recovery units in the ventilation systems. A combination of air sourced heat pumps and gas fired condensing boilers were installed which provide a low carbon heat source along with back resilience and cold weather performance. Coupled with additional wall insulation, this project delivered annual savings of 605,000kWh and 104 t CO₂.

The university's cyclical Asset Replacement Programme continues to invest in our estate and delivers carbon co-benefits through the replacement and upgrade of ageing engineering plant/infrastructure and building fabric. It replaced 80 small split system air conditioning units and 15 larger chilled water units. Replacement of old air conditioning units/chillers with modern energy efficient units not only saves operational carbon emissions but also reduces the potential escape of refrigerant gas, which have significant global warming potential.

Across the portfolio, we have seen an increase in electricity consumption in the region of 2.3 % and a decrease in gas use of 9.9%. The addition of Castle Meadow Campus into the portfolio has resulted in an increase in energy consumption, both electricity and purchased heat from the city’s energy from waste system. The carbon impact of the Castle Meadow campus has been minimized due to the lower carbon intensity of the heat provided by the city’s energy from waste system.

Our fugitive emissions are down significantly (31%) this year compared to last year. This is due to our improved maintenance regime of cooling plant but also through the replacement of ageing equipment through the Asset Replacement Program.



Since setting our science based carbon targets using a baseline of 2018 / 2019 we have seen (with the exception of 2020 / 2021 , due to impact of the pandemic) a downward trajectory of our carbon emissions in line with our target. Our annual emissions target for this year was 35,109 tonnes of Carbon with our overall scope 1 and scope 2 carbon emissions for 2022/23 being 33,501 T CO₂.

Since setting our baseline in 2018 / 2019 we are slightly ahead of our overall carbon budget and it is essential moving into this next year that we continue to drive down consumption across all areas of the estate.

	2018/19	2019/20	2020/21	2021/22	2022/23
Actual Carbon Emissions	42,439	39,216	41,382	37,166	33,501
Reduction Target	42,439	40,987	39,494	37,324	35,109
		-1,771	1,888	-158	-1,608
Cumulative					-1,649

Sustainable laboratories



Laboratories and clinical spaces contribute up to 2% of the world's plastic waste. They also use 3-10 times more energy than typical higher education academic spaces. This presents a huge opportunity to improve our working practices to make research and teaching more sustainable. The Technical Sustainability Working Group (TSWG) is a group of lab technicians from across the university's Nottingham and Derby campuses, working to embed sustainability within labs.

Our technical staff are at the forefront of university laboratories and therefore well-placed to lead green initiatives, implement change and share best sustainable practices and ideas. This network has also enabled us to reach out and engage many of our leading researchers and academics on sustainability issues. The establishment of this multi-discipline network continues to deliver sustainable improvements including:

- Secured **funding** for projects and improved the process for requesting access to funding.
- **Waterless condensers** installed in Biodiscovery Institute and chemistry labs. These save three million litres of water going straight down the sink per year.
- Purchased **solvent recyclers** and started using green solvents in the chemistry labs.
- Signed up to [LEAF](#) as a way of benchmarking efficient and sustainable lab practices - to date more than **80 labs** proactively engaged.
- Started moving -80 freezers to -70 to save **25% in energy**.
- Began using [UniGreen Scheme](#) to recycle lab equipment.
- Set up writing instrument recycling.
- Created bespoke tip box recycling and lab plastics recycling e.g. chemical containers, Winchester lids etc.
- Engaged with Nottingham Trent University through our Universities for Nottingham civic agreement to roll out best practice.
- Established and engaged a Midlands University Network to promote and share best practice.

Waterless air condensers have replaced water flow reflux condensers in the School of Chemistry teaching labs, BDI chemistry labs and the GSK Carbon Neutral Labs with more installations planned. They work as well as water flow condensers in stopping experiments boiling dry but have significantly reduced environmental impact and water costs. They have so far **saved 10 million litres water**, £22,000 and 298 tonnes of CO₂e.

Sustainable food and catering



In December 2022 we completed our **Food Made Good** rating for our catered accommodation for the Sustainable Restaurant Association. The rating assesses all aspects of sustainability within catering establishments, from seasonality and reducing meat consumption, working with the community and treating staff fairly, to reducing energy usage and disposables. We received 2 stars out of a maximum of 3, which is a huge success for our first rating.

We have also implemented **Menus of Change** in our catered accommodation. This is an initiative launched by the Culinary Institute of America and Harvard T.H. Chan School of Public Health to help higher education institutions provide more plant-forward menu choices whilst emphasising seasonal, whole foods. Out of the 24 principles from the initiative, we have so far achieved 14.

Since January 2022, we have used the app **Too Good to Go** to sell surplus food at some of our retail outlets. As of July 2023, 9 of our cafes have been using the app to sell food that would otherwise go to waste.



In 2022-23, 1,502 'Magic Bags' were sold, saving the equivalent of 3,680 kg of CO₂e.

In October 2022, we began trialling **carbon labelling** in all our catered accommodation during dinner service, and at two of our cafes on University Park. This educates staff and students on the CO₂e impact of their food choices through simple labelling on menus. There are plans to further expand this to other areas of catering such as the halls bars.



Low
0.1-0.5 kg CO₂e



Medium
0.6-1.5 kg CO₂e

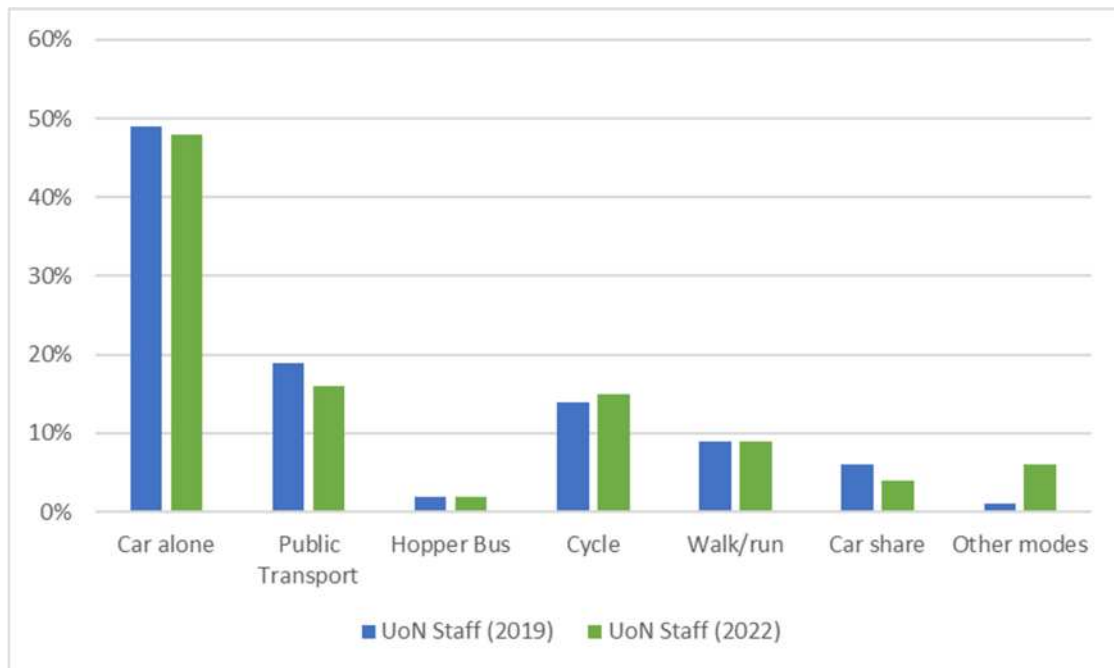


High
1.6+ kg CO₂e

Sustainable travel and transport



Staff and student travel surveys aim to understand how the university community travel to campus, and what would encourage them to switch to more sustainable modes. The university-wide results for staff current mode of travel to university in 2022 are summarised in the graph below, together with the 2019 survey results. Staff travel has remained relatively unchanged since 2019, except for an increase in home working.



The university has implemented a range of measures to support staff to travel to work by more sustainable modes. For example:

- **Cycle to work scheme** – enables staff to purchase a new bike via salary sacrifice. There were 25 new bike applications.
- **Season ticket scheme** – allows staff to purchase a discounted bus, tram, or train season ticket via salary deductions. Last year 436 staff benefited from this scheme.
- **Tusker** – staff can lease an electric or ultra-low emission vehicles via salary sacrifice. 55 staff participated in the scheme, with 84% opting to lease electric vehicles (EVs).

We have installed **8 new cycle repair stands**. These provide a range of useful tools to enable cyclists to carry out basic cycle maintenance. We also offer bike service and minor repairs sessions across our campuses. **42 Dr Bike sessions** were held across University Park, Jubilee Campus, Sutton Bonington and King's Meadow Campus, with **400 students and staff utilising this free service**.

Working in partnership with Nottingham City Council, Lime and Super-pedestrian, **e-bikes and e-scooters** are now available for hire on our Nottingham City campuses. These are being used for both cross-campus travel and commuting trips.

To enable the greening of the university's fleet, whilst also supporting EV users, we have expanded the campus EV charging network by **installing 40 electric vehicle-charging** points across our UK campuses.

To reduce the need for inter-campus travel by car, the university funds four **Hopper Bus** services which offer free travel to our staff and students. In 2022/2023, total patronage across the services was 782,000.

Whilst we promote climate conscious travel, we recognise there is still a need for air travel to undertake university business. In 2022/23, **7,281 flights** were made through the university's booking system – a considerable drop on pre-pandemic figures. These flights generated an estimated 5,330,102 kg CO₂e (including Radiative Forcing), with a further 583,610 kgCO₂e from Well-to-Tank (WTT) emissions.

A total of **21,284 rail journeys** were booked through the university's booking system, generating an estimated 78,389kg CO₂e.

In the coming year there will be a focus on encouraging climate-conscious travel choices by those travelling on university business. We will be piloting a flight carbon charge and the funds generated will be used to subsidise sustainable travel initiatives and carbon reduction initiatives.

Waste and circular economy



The university community produced a **2,512 tonnes of waste** in 2022/23, of which 46% was recovered on site for recycling and just under 10% was disposed via landfill. We collected a total of **96 tonnes of food waste** (up from 63 tonnes in 2021/22) from across the university, including catered halls of residence. Our food waste is processed locally by an anaerobic digester and can be used to create fertilizer, soil amendments and livestock bedding. The resulting bio methane from the digestion process is used to create heat and electricity.

Water refill stations are located across all university campuses to encourage the use of reusable water bottle and reduce single-use plastics. Of the five special bottle refill stations in place, the **equivalent of 763,372 plastic bottles have been saved**. Further refill stations are to be installed in the coming year.

We have continued our partnership with the **British Heart Foundation (BHF)** to enable students to donate unwanted items such as clothes, electrical, books and furniture to collection banks on campus and in the local community. The donated items — which would

otherwise likely end up in landfill — are sold on in BHF charity shops. The money raised supports the lifesaving research and work of the BHF.



The use of **WARPit**, an online portal that makes it easy for staff and repurpose to share surplus items such as office furniture and consumables, has continued through the 2022/23. This meant that **9,083 kg** of would-be waste has been diverted for reuse amongst staff, saving 24.6 tonnes of CO₂e. That is the equivalent of planting 19 trees or taking six cars off the road.

Approximately 440,000 hot drinks were sold at our cafes in 2022-23 (excluding SU and 3rd parties). **64,210 reusable cups were used** by our customers, which accounted for 14% of the hot drinks sold. Customers using their own, reusable cups instead of disposable cups saved 2,366 kg CO₂e.



Staff and student engagement



Green Rewards is the university-wide sustainability engagement platform encouraging and rewarding staff and students' positive environmental behaviors. Teams also compete to win donations to their chosen charity, with **£1,400 donated** through the platform so far.

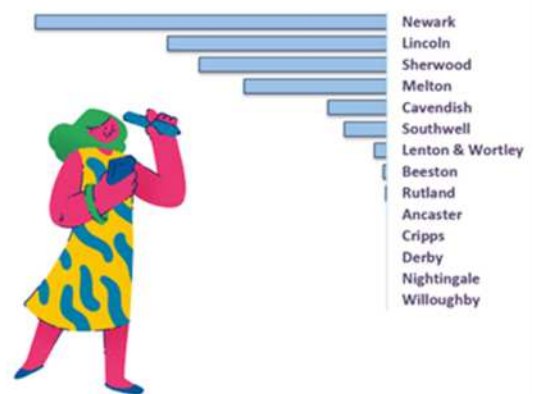


In 2022/23, the waste and recycling theme had the highest number of actions, with 20,341 actions logged. 1 tonne of CO₂ was avoided through staff and students using their reusable cups and bottles and 27 tonnes of CO₂ was avoided through users recycling.

Sustainability Action Week took place at the university from 13 March to 17 March 2023. This week of events encouraged staff and students to engage with environmental issues and take action for the climate. There were activities and talks online and across our UK campuses, a sustainable travel fair, a litter-picking and well-being walk, and an [art from waste creation](#).

We are continuing to engage with students residing in halls of residence to instil positive behaviours. **The go! Switch Off Halls Competition** encouraged students to actively save energy in a friendly competition against other on campus halls. Sherwood Hall won in the Autumn term and Newark Hall in the Spring term. Newark Hall in particular saved **23,985 kWh of electricity**, which is **8.8 tonnes CO₂**. This equates to two round trips from London to Singapore.

go! Switch Off Halls Competition



COP27, the 27th United Nations conference on climate change, took place in Egypt between 6 and 18 November 2022. With 2022 also the 30th anniversary of the adoption of the United Nations Framework Convention on Climate Change, the university reaffirmed its committed to sustainability in everything we do, [from dedicated research on averting and mitigating the climate crisis, to how we operate.](#)

The Estates and Facilities department has been operating an in-person **sustainability induction for new starters** across its workforce for a year. To date, more than 280 members of staff have been through this course. It provides an overview of sustainability, targets and initiatives at the university and how staff members can get involved. There is now a project to expand the reach of this to enable all staff to be trained on sustainability, what it means for them, and what impact their actions have on environmental issues both locally and globally.

Nature Positive University



The university's Estate Development Framework and Environmental Sustainability Strategic Delivery Plan make significant commitments to improving biodiversity across our UK campuses. In December 2022, the university became a founding signatory of the Nature Positive University Alliance. This initiative, co-led by the UN Environment Programme and the University of Oxford, is committed to reversing biodiversity decline and to driving the world's higher education sector towards a nature-positive future.



By pledging to become a Nature Positive University, the Nottingham has committed to develop a framework to help achieve the following:

- REDUCING negative impacts on nature
- RESTORING species and habitats
- RENEWING ecosystems

Throughout 2023, we have been establishing biodiversity baselines to enable us to develop meaningful targets that benefit and increase the nature on our campuses. Nevertheless, we are also already taking practical action. Each year we participate in **No Mow May** and leave areas to grow wild; long grasses and wildflowers provide wildlife habits and food sources and have created additional habitats.

New **wildflower areas** across Sutton Bonington and University Park have already been providing some beautiful flowers for wildlife and people to enjoy. The creation of a large wildflower meadow outside one of University Park's historic houses continues to develop and wildflower turf has been lain outside the Monica Partridge Building.



A new **wetland environment** was created on University Park. Pre-existing depressions in the ground were enhanced to capture water and have been planted with marsh and water loving

plants. Whilst still establishing, it provides a valuable home to a variety of wildlife, including several newly created **hibernaculas** - underground chambers for amphibians and reptiles to overwinter safely.

In December 2022, UoN Sport and the Sustainability Team planted over **850 trees** at the Riverside Sports complex to offset travel from Big BUCS Wednesday sporting event.

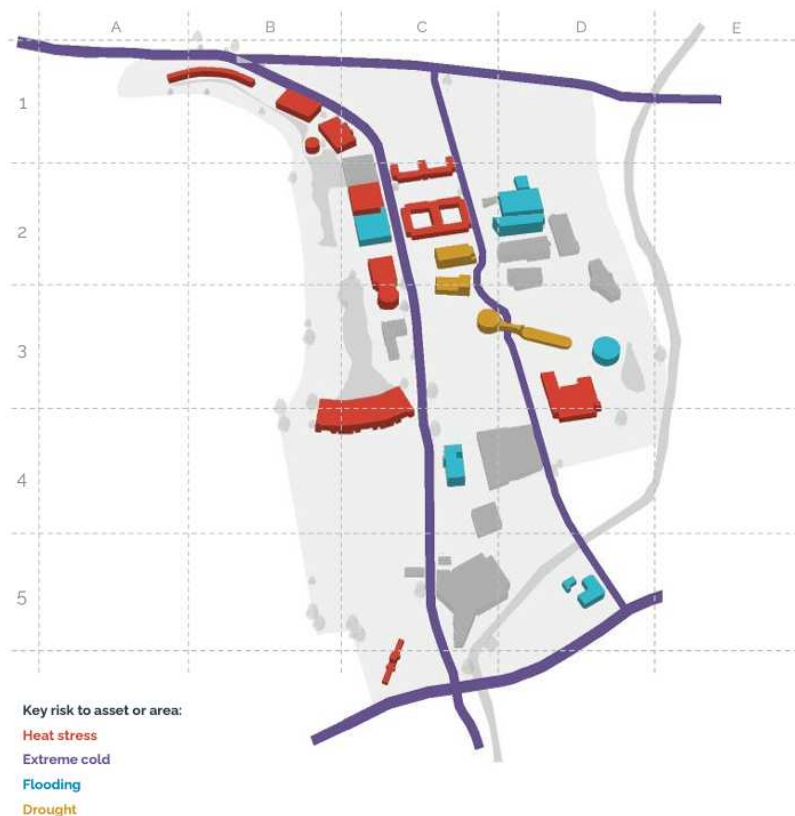
Five large **bug hotels** were installed, with at least one on each of our main UK campuses, in locations that provide the best foraging for bugs and insects.



Climate adaptation and resilience



We are increasingly aware that climate mitigation on its own, i.e. carbon reduction, is not enough to address the impacts of climate change, which for the UK is predicted to be hotter, drier summers and warmer, wetter winters. We need to be thinking about climate adaptation and resilience too. For the university, this means considering the risks and opportunities to our built and natural environment posed by the impacts of a changing climate, including floods, extreme temperatures, wildfires, increased storm intensity, power and water availability.



In 2022/23, a project was commissioned to increase the university's understanding of physical climate risk to the built environment over the short, medium and long term. The assessment considered the risk of extreme precipitation, wildfire, heat stress, drought, mass movement, and extreme cold, so that we have a full picture of the climate risks and opportunities across our whole campus estate.

The findings of this study will be used to inform a wider adaptation and resilience strategy for the university, from future maintenance programmes, to how we build new buildings in the future, to how we landscape our campuses. We will focus in on areas that have been highlighted by the study as being medium to high risk, and engage colleagues across the organisation to ensure climate risk is embedded into decision-making.

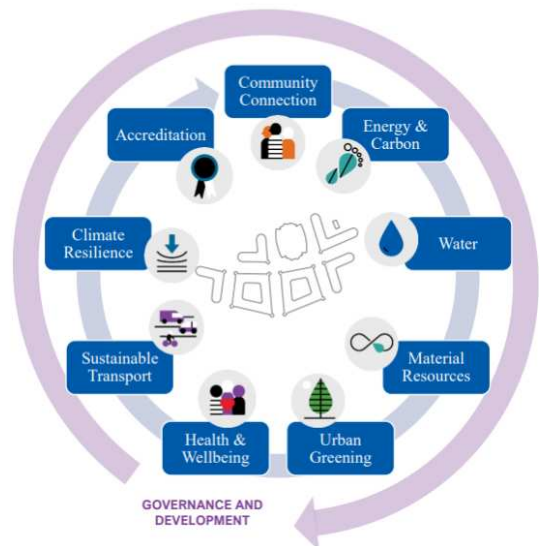
Castle Meadow Campus – sustainability at its heart

Castle Meadow was constructed in 1994 with the original design developed by Hopkins Architects and Arup. An exemplar of its time the existing buildings use several passive, ventilation and cooling mechanisms in their design, and unlike many buildings from its era are heated by a lower carbon Energy from Waste (EFW) district heating network.



The purchase of the site by the university in 2022 presented an opportunity to demonstrate the university's commitment to embedding sustainability, as it undergoes a transformation into a modern university campus. We can re-use the existing substructures and superstructures, which have not yet reached the end of their design life, along with any elements of the façade, building services, and internal finishes that are suitable for re-use. The carbon saved via the acquisition of CMC and not building new is 22,000 tonnes of CO₂. This is more than half of the university's current Scope 1 and Scope 2 footprint (2021/2022 total scope 2 & 1 carbon emissions were 37,166 tonnes of CO₂).

To help support and develop the sustainability strategy for the Castle Meadow Campus, the university has been working with external consultants. An outcomes approach linked to the Sustainable Development Goals (SDGs) was developed to best reflect the university's sustainability aspiration and support the wider university strategy. These outcomes have been used to develop a delivery framework. To ease communication, the framework is split into nine focus areas. These are influenced by the above outcomes, university ambition, as well as local drivers such as the city's CN28 ambition.



Associating SDGs to the Castle Meadow Campus outcomes and focus areas enables clear characteristics to be established and communicated against an easily adoptable, transparent and globally recognised approach.

This approach reflects the fact that, within the context of the Castle Meadow redevelopment, one size won't fit all due to the phased approach and the varying levels of refurbishment and investment within each building and the site in general.

Sustainable Investments



In 2020, the University of Nottingham committed to deliver on its desire to invest its £60M+ endowment and £9.5 million medium-term investment fund in line with the university's strategy and commitment to sustainability. Cazenove Capital were appointed investment managers, with an explicit dual objective for strong long-term financial returns alongside positive impact on people and planet. The underlying investments are social as well as climate-focused.

34% of the Fund directly contributes to solutions that further the UN SDGs. Within that, the most closely aligned goals are:

- Good Health and Wellbeing (38%)
- Affordable and Clean Energy (23%)
- Industry, Innovation and Infrastructure (10%)
- Sustainable Cities and Communities (9%)

Understanding the impact of your investments



By investing in sustainable initiatives and generating a return on that investment, the university has been able to bolster its offer of studentships, especially to those from underprivileged backgrounds.

The year ahead

Whilst we continue to make progress on our environmental sustainability journey, there is a recognised need for us to act with a level of urgency to ensure that we fully embed environmental sustainability in our operational performance and are able to better articulate our ambition, risk and progress in this area. As such, the following are key pieces of work that will be delivered over the next 12 months.

Develop a costed decarbonisation road map to support the delivery of our science-based carbon reduction target. This will include the actions, investment, offsetting strategy, capacity, skills and knowledge required to deliver our science-based ambitions.

Publish biodiversity action plans for each campus, ensuring that they are fully integrated into campus landscape management plans and develop policy on enhancing biodiversity and the delivery of Biodiversity Net Gain.

Develop a climate adaptation and resilience strategy linked to our decarbonisation roadmap and biodiversity plans.

Further develop actions plans to deliver all sustainability objectives, building on the existing action plans that delivers against the Environmental Sustainability Strategic Delivery Plan, taking a programme-led approach.

Undertake a review of our scope 3 emissions and establish action plans and targets for key areas, noting that Scope 3 measuring and monitoring is a complex area due to the difficulty in measurement and the methodology of translating spend into carbon emissions.

Work with the Planning Policy and Strategic Change unit to **more fully integrate environmental sustainability within the institutional decision making**, business planning and business case processes.

Building on work done to date and Strategic Innovation Fund projects, **accelerate activity in embedding sustainability in teaching**, and at the same time **upskill the university community** through a more focused **central university communications** and engagement plan.