# Gwasanaethau Campws
# Campus Services

## Environment Annual Report 2021/22

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# INTRODUCTION

The annual Environment Report summarises the University's performance during the 2021-22 academic year against key environmental sustainability targets and objectives, as well as providing a wider review of initiatives and vision going forwards. The Report evaluates energy and water usage, carbon emissions, waste production and the environmental impacts of travel and transport. It also highlights some exciting developments, including to preserve and increase biodiversity and create new habitat for wildlife across the University's estate.

Many of the 2021-22 environmental targets and objectives reflect the journey towards the delivery net zero Scope 1 and 2 by 2030. Reassuringly, the University has achieved many of these targets and objectives, including reducing Scope 1 and 2 carbon emissions by 27.9% over the last three years from University buildings, or the equivalent to 2,645 tonnes of $CO_2e$ . The University has also developed a strategic approach to further reduce emissions and updated and aligned many of its policies and procedures with the overarching goal of carbon reduction.

Crucially the University published its Carbon Management Plan (CMP) in April 2022, which defines the principles of an achievable, clear, and measurable plan for the future attainment of net zero Scope 1 & 2 by 2030 and outlines a route to tackle Scope 3 carbon (emissions from indirect sources).

Reducing the University's waste production and emissions from travel and transport will help reduce its Scope 3 emissions and make a positive impact on the wider environment by slowing the rate of climate change and protecting biodiversity both locally and globally. Although the University did not complete a draft Travel and Transport Plan in 2021-22 in line with its target, it continues to work on the Plan to reduce carbon emissions from travel and transport. The University reused and recycled 57.7% of its waste in 2021-22, which was an increase of 2.7% from the previous year but there is still more work to do as the University's long-term target is to achieve a rate of 70% reuse and recycling by 2025.

The University monitors and manages aspects of biodiversity as a part of its ISO14001:2015 accredited Environmental Management System and progress on biodiversity is reported annually to the Sustainability Strategy Group. The University has an Environmental Policy and the Biodiversity Action Plan is currently being updated. The Biodiversity Action Plan defines our priority areas for biodiversity action, sets targets for enhancing biodiversity and ensures biodiversity is included in decision making regarding estate management.

# BACKGROUND

**BANGOR UNIVERSITY CONTINUES OUR WORK TO MINIMISE OUR ADVERSE ENVIRONMENTAL IMPACTS BY:**


Bangor University's core business is to provide high quality teaching and research whilst taking good care of our staff, students and community, whilst also understanding that our activities have an impact on the environment. The University is committed to continually improving its environmental performance and meeting the requirements of ISO 14001:2015, which is an internationally recognised standard of environmental management.

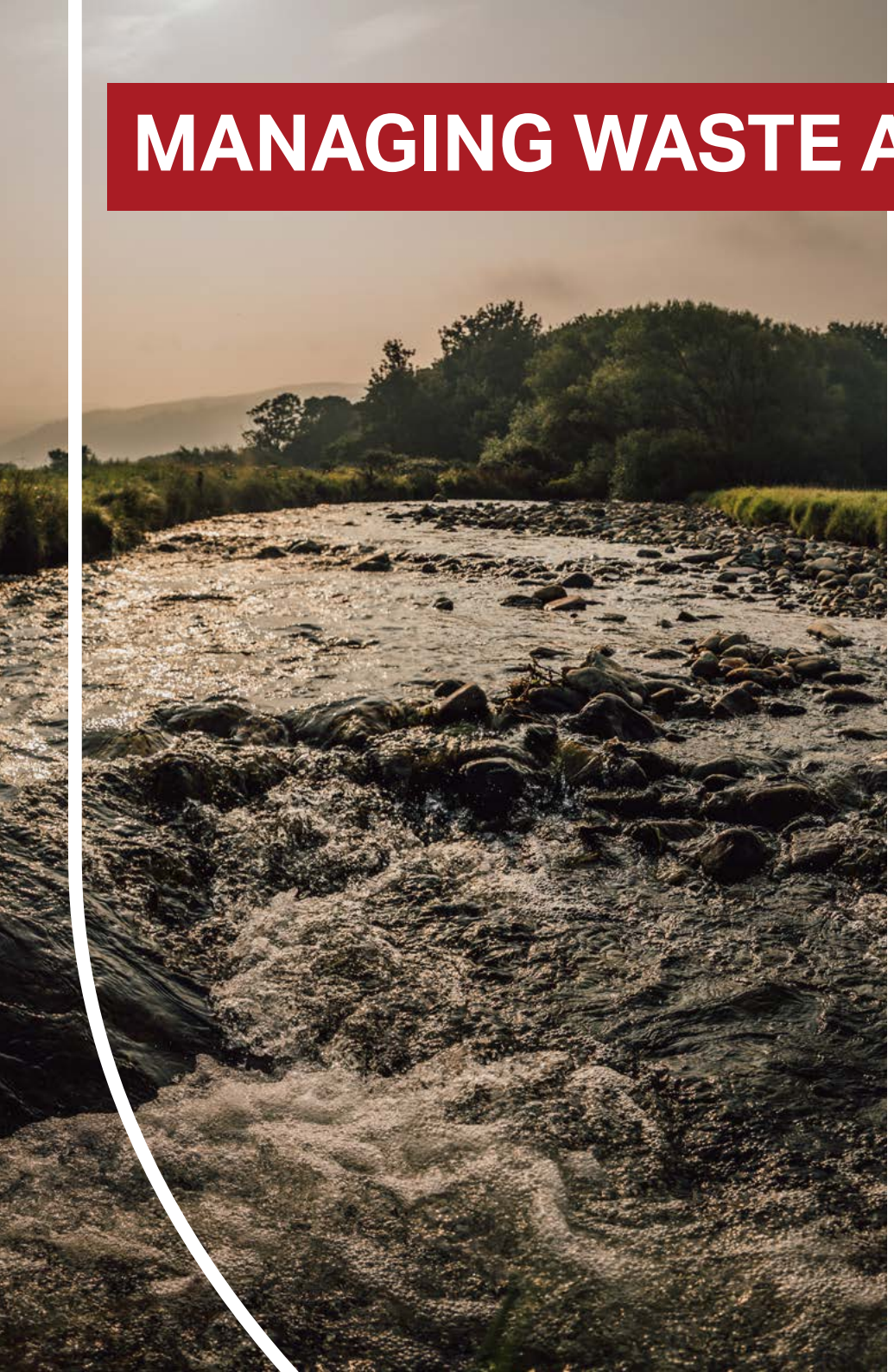
Maintaining ISO 14001:2015 certification ensures that the University reduces its adverse environmental impact and improves its overall environmental performance. It does this by providing a blueprint for our environmental management system (EMS) and building a robust framework to support and deliver the EMS. To gain and retain ISO14001:2015 certified status, the University's EMS is subject to external audits by a UKAS accredited external auditing body. For more detailed information please refer to the Environmental Management pages on the website.

Bangor University will not only seek to protect our natural environment, but also actively pursue opportunities to enhance it, promote a culture of environmental stewardship amongst our staff and students and work towards the goals of sustainable development.

# OBJECTIVES AND TARGETS 21/22

| IMPACT AREA | TARGET | STATUS |
|---|---|---|
| Environmental Compliance | T1 Ensure compliance with all relevant legislation and obligations associated with our activities and prevent the pollution of the natural environment and demonstrate compliance | Achieved |
| Waste Management | T2 Achieve 64% reuse and recycling by July 2022 | Not Achieved |
| Energy and Water Consumption | T3a Reduce energy use by 3% compared to 2018/19, as a function of i) m2 useful floor area and ii) FTE students & staff | Partially Achieved |
| | T3b Reduce water consumption by 2% compared to 2018/19, as a function of i) m2 useful floor area and ii) FTE students & staff | Achieved |
| Travel and Transport | T4a Install 10 charging points for electric vehicles across the estate | Achieved |
| | T4b Produce draft Travel & Transport Strategy | Not Achieved |
| Carbon, Emissions and Discharges | T5a Reduce Scope 1 & 2 emissions by 20% compared to 2018/19 | Achieved |
| | T5b Identify all Scope 1,2 & 3 emissions | Achieved |
| | T5c Revise and Approve Carbon Reduction Strategy | Achieved |
| Biodiversity | T6a Develop amenity grassland management plan in consultation with the grounds and gardens team | Ongoing |
| | T6b Increase unimproved grassland/wildflower meadow area across the University estate | Not Achieved |
| | T6c Update and approve University Biodiversity Action Plan | Ongoing |
| Construction and Refurbishment | T7 Develop and agree standards for new build projects and refurbishments that aim to minimise environmental impacts | Ongoing |

# MANAGING WASTE AND CIRCULAR ECONOMY



The University's waste targets are in line with the Welsh Government's target to reuse and recycle 70% of total waste produced by 2025. Managing waste and the circular economy effectively reduces carbon emissions and decreases the demand for natural resources. Additionally, reducing waste and reusing more items in the local economy also offers cost savings to the University.

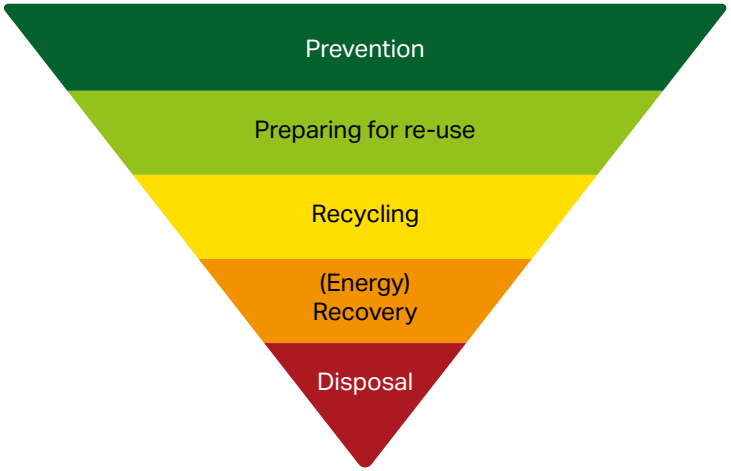
The University did not meet its waste reduction target for 2021/22 (reuse and recycle 64% of our waste), there was however an improvement of 2.74% from 2020/21. Data shows a marked increase in the amount of waste generated; this mirrors other data sets returning to pre-Covid activity.

| | 2021/22 | 2020/21 | % CHANGE FROM PREVIOUS YEAR |
|---|---|---|---|
| Total Waste Generated (Metric Tonnes - MT) | 787.80 | 513.45 | +53.43% |
| Total Reused and Recycled MT (Percentage of total) | 454.51 (57.69%) | 282.12 (54.95%) | |
| Total Sent to Energy Recovery MT (Percentage of total) | 333.29 (42.31%) | 231.21 (45.03%) | |
| Total Sent to Landfill MT (Percentage of total) | 0.0 (0%) | 0.12 (0.02%) | |

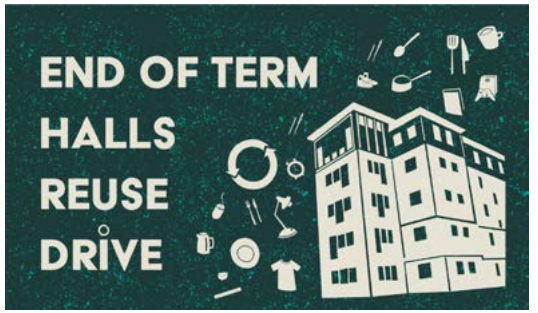
# MANAGING WASTE AND CIRCULAR ECONOMY

2021/22 saw positive progress in understanding and confronting the barriers to reuse and recycling and inefficiencies concerning waste collection and data collection.

The University endeavours to apply the Waste Hierarchy when making decisions involving sustainable procurement; the first step when consulting the Waste Hierarchy is to consider how to prevent waste in the first instance, followed by reuse, recycling (which includes anaerobic digestion) and finally energy recovery. Disposal to landfill should be avoided at all costs and in 2021-22 the University sent zero waste to landfill.




The University raised awareness amongst staff, students and visitors through improved communication and involvement, talks, campaigns, and initiatives and the core programmes that ran in 2021-22 were Better Apart, Waste Awareness Week and End of Term Halls Reuse Drive.

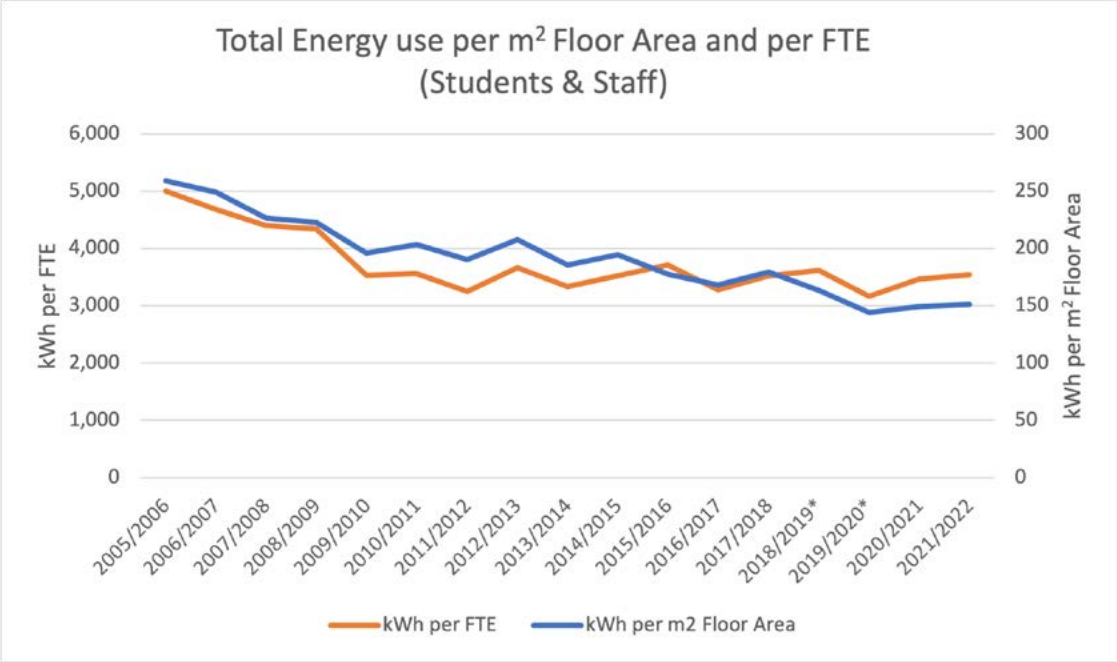






# ENERGY CONSUMPTION

**TARGET 3A - REDUCE ENERGY USE BY 3% COMPARED TO 2018/19, AS A FUNCTION OF I) M2 USEFUL FLOOR AREA AND II) FTE STUDENTS & STAFF**




*Amended FTE data

| | 2021/22 | COMPARED TO 2018/19 | COMPARED TO 2005/06 |
|---|---|---|---|
| Total Energy Consumption | 34,719,724 kWh | -7.5% | -25.4% |
| | | | |
| i. Energy consumption per m2 | 151.47 kWh/m² | **-7.5%** | **-41.5%** |
| Performance against Target 3a | | **Achieved** | |
| ii. Energy consumption per FTE | 3,539.89 kWh/ FTE | **-2.2%** | **-29.2%** |
| Performance against Target 3a | | **Partially Achieved** | |

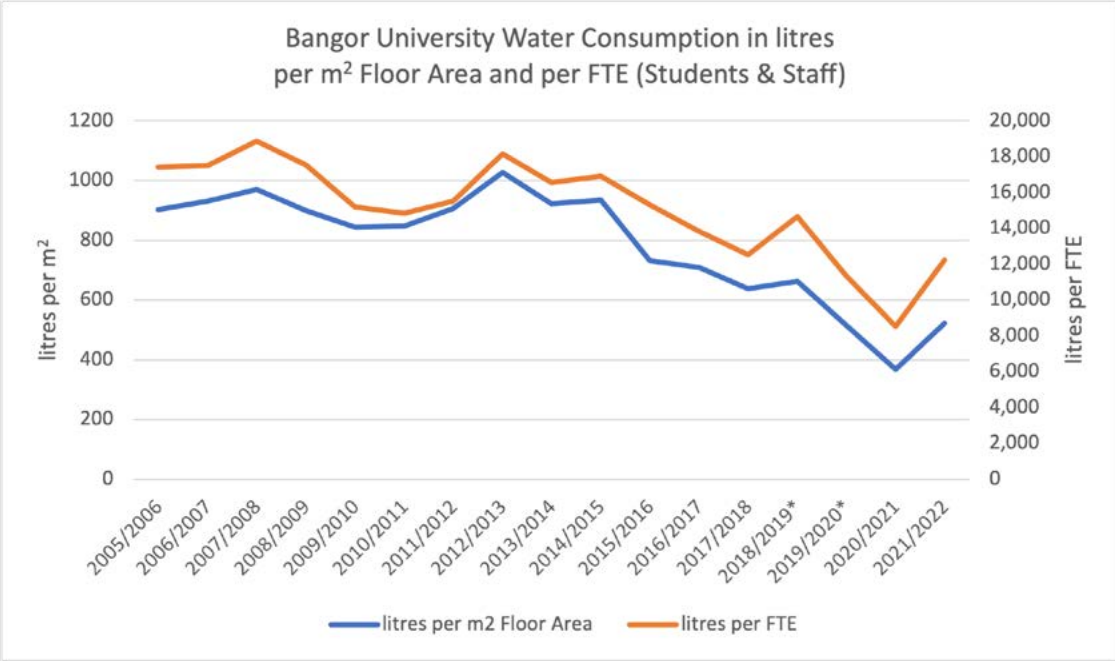
**SUMMARY OF ENERGY CONSUMPTION**

| | 2021/22 |
|---|---|
| Total Electricity Consumption | 14,123,542 kWh |
| Total Gas Consumption | 20,020,001 kWh |
| Total Heating Oil Consumption | 521,763 kWh |
| Total LPG Consumption | 54,417 kWh |
| On-site Generation (Solar) | 73,574 kWh |

# WATER CONSUMPTION

**TARGET 3B - REDUCE WATER CONSUMPTION BY 2% COMPARED TO 2018/19, AS A FUNCTION OF I) M2 USEFUL FLOOR AREA AND II) FTE STUDENTS & STAFF**

| | 2021/22 | COMPARED TO 2018/19 | COMPARED TO 2005/06 |
|---|---|---|---|
| Total Water Consumption | 120,034.65 $m^3$ | -21.1% | -26.0% |
| | | | |
| i. Water consumption per m2 useful floor area | 523.65 litres/$m^2$ | **-21.1%** | **-42.0%** |
| Performance against Target 3b | | **Achieved** | |
| ii.Water consumption per FTE (students and staff | 12,238.28 litres/ FTE | **-16.6%** | **-29.8%** |
| Performance against Target 3b | | **Achieved** | |




*Amended FTE data

# CARBON, EMISSIONS AND DISCHARGES

During the 2021/22 academic year the University's carbon emissions from Scope 1 and 2 decreased considerably to **6,846.53 tonnes CO2e**, compared to 9,491.9 tonnes CO2e in 2018/19 on location-based electricity calculations. Market-based emissions decreased **47.05% from 2018/19**, due in the main to not having Renewable Energy Guarantees of Origin (REGO) certificated renewable electricity in 2018/19. The current contract for REGO expired in April 2022, denoting the increase from 0 tonnes CO2e in 2020/21 to **910.40 tonnes CO2e in 2021/22.**

**TARGET 5A:**
**REDUCE SCOPE 1 & 2 EMISSIONS BY 20% COMPARED TO 2018/19**

| TOTAL REPORTED EMISSIONS | 2021/22 | COMPARED TO 2018/19 | COMPARED TO 2018/19 |
|---|---|---|---|
| i. Location-based Method | 6,846.53 tonnes CO2e | -27.87% | Achieved |
| ii. Market-based Method | 5,025.72 tonnes CO2e | -47.05% | Achieved |

A comparison of Scope 1 and 2 activities between 2018/19 and 2021/22 showed a carbon emission reduction in several areas namely: slight reductions in electricity, natural gas and LPG consumption, a more accurate data collection method for agricultural activities, and significant diesel and petrol consumption decreases. Research undertaken over the years has also resulted in a decrease in the UK emission factors for electricity. A slight increase was only found in heating oil consumption.

The University published its Carbon Management Plans for Scopes 1, 2 and 3 in 2022. Previous to this the University undertook a scoping exercise to determine all Scope 3 categories and established baseline data targets. As such, over the forthcoming years, additional categories will be reported once reliable data capture methods have been determined. The University continues to explore opportunities to reduce carbon emissions through a variety of methods, campaigns, and feasibility studies.

| SCOPE 1 EMISSIONS BY SOURCE | |
|---|---|
| Gas Consumption | 3,654.45 tonnes CO2e |
| Heating Oil Consumption | 128.76 tonnes CO2e |
| LPG Consumption | 11.67 tonnes CO2e |
| Petrol Consumption | 29.96 tonnes CO2e |
| Diesel Consumption | 46.15 tonnes CO2e |
| Agricultural Activities | 244.33 tonnes CO2e |
| Scope 1 Total | 4,115.32 tonnes CO2e |

| SCOPE 2 EMISSIONS BY SOURCE | |
|---|---|
| Electricity Consumption - (Location-based Method) | 2,731.21 tonnes CO2e |
| Electricity Consumption - (Market-based Method) | 910.40 tonnes CO2e |

| SCOPE 3 EMISSIONS BY SOURCE | |
|---|---|
| Water Consumption | 17.89 tonnes CO2e |
| Wastewater Produced | 27.44 tonnes CO2e |
| Waste | 15.20 tonnes CO2e |
| Grey Fleet | 53.65 tonnes CO2e |
| Leased Vehicles (Car Hire) | 19.14 tonnes CO2e |
| Supply Chain (Procurement) | 23,560.30 tonnes CO2e |
| Scope 3 Total | 23,693.62 tonnes CO2e |

| SEQUESTRATION BY LAND HOLDINGS | |
|---|---|
| Sequestration | -898 tonnes CO2e |

| TOTAL REPORTED EMISSIONS | |
|---|---|
| Total with location-based electricity | 29,642.15 tonnes CO2e |
| Total with market-based electricity | 27,821.34 tonnes CO2e |

# BIODIVERSITY

The University's Strategy 2030 - Sustainability Strategy was published in February, 2022 and made the commitment to set aside 30% of its estate to benefit wildlife and increase biodiversity, which is in line with the Wildlife Trust's '30 by 30' campaign.

**Biodiversity targets**
The University had three biodiversity targets in 2021-22:

- Develop amenity grassland management plan in consultation with the grounds and gardens team.
- Increase unimproved grassland/wildflower meadow area across the University's estate.
- Update and approve University Biodiversity Action Plan.

**Progress against targets**
Although an amenity grassland management plan was not completed, potential areas to convert to grassland were audited. The University continues to develop a University Amenity Grassland Management Policy and its completion and approval is a biodiversity target for 2022-23.

Similarly, there were no new areas of unimproved grassland or wildflower meadow created across the University's estate, but some potential areas were identified as being suitable for new habitats that will attract more wildlife and these areas will be included in the University's upcoming '30 by 30 in 30' campaign which will manage more areas of its estate for wildlife.

The University continues working on its Biodiversity Action Plan and its completion and approval is also a 2022-23 biodiversity target.

For detailed information about biodiversity at Bangor University, please go to:
Section 6: The Biodiversity and Resilience of Ecosystems Duty - 2022 Report

# TRAVEL AND TRANSPORT

There were two travel and transport targets for 2021-22:

- Install 10 charging points for electric vehicles across the estate
- Produce draft Travel & Transport Strategy

The University achieved its first target by installing 22 charging points in 2021-22 as part its wider programme to make electric vehicle charging more accessible and to support the decarbonisation of the University's fleet. The programme also includes a rollout of additional charging points for staff and student use in the future and locations for these have been identified. The Campus Services team is currently installing and upgrading the electrical infrastructure to support them.

Read more about the Zero Emission Vehicles here: Campus Services Fleet Goes Electric

While the University did not manage to complete a draft Travel and Transport Plan in 2021-22, it is still under review in order to address the urgent need to reduce our carbon emissions in line with achieving net zero by 2030 and to account for the changes in travel patterns and modes of transport due to the introduction of dynamic working in the wake of the Covid-19 pandemic.

The University is also developing new strategies, including an Active Travel Strategy and a Pedestrian First Strategy, that will help to inform the Travel and Transport Plan and ensure that it incorporated the principles of health, wellbeing, and sustainability.