

Water management plan 2022 – 2026

Introduction

Water is a precious and limited commodity and the University is committed to managing its water use effectively. Since 2011/12, the University has made very significant reductions in its non-residential water consumption.

This Plan reports the University's progress against targets and sets out its ongoing approach to responsible water management, recognising the importance of maintaining the major reductions achieved and continuing to enhance good management practices.

Performance against targets

The University's 2016-21 Carbon & Water Management Plan set the following reduction targets for July 2021:

	Non-residential	Residential*
Base target	30% reduction vs 2011/12 baseline	5% per capita vs 2015/16
Stretch target	35% reduction vs 2011/12 baseline	5% per capita vs 2015/16

*Halls of residence operated by UPP

The failure of the University's main water meter made it difficult to make an accurate assessment of progress against targets at the end of July 2021. However, the meter has now been replaced, and based on data from this new meter for the first 6 months of 2021/22, the University has achieved the following reductions across its estate:

- Non-residential – cuts of 38% - 40%, saving 288,057 m³ water and £549,238 cumulatively
- Residential (halls) – cuts of 23% - 27%, despite there being over 1,500 additional bedroom spaces in the onsite halls of residence compared to the 2011/12 baseline year

In combination, this represents reductions of 32% - 35% against baseline.

An element of uncertainty remains because of temporary COVID-19 reductions in operations, which is why a range rather than a single figure percentage is presented.

The achieved reductions are significantly greater than the 5-year targets in all instances. For the residential accommodation, back in 2016 it was anticipated that a Student Hotel would be opening on campus, expected to add a significant water demand on campus. This project did not materialise and is not now on the horizon.

Consumption trends

Figure 1 shows the University's annual water consumption since 2011/12, split between non-residential and residential water use.

The graph illustrates dramatic drops in consumption in 2019/20 and 2020/21 and as already referenced, some of this will relate to COVID-19 shutdowns. However, data from the first 6 months of 2021-22 suggests sustained savings have also been delivered through significant efficiency work (see 'Water Efficiency').

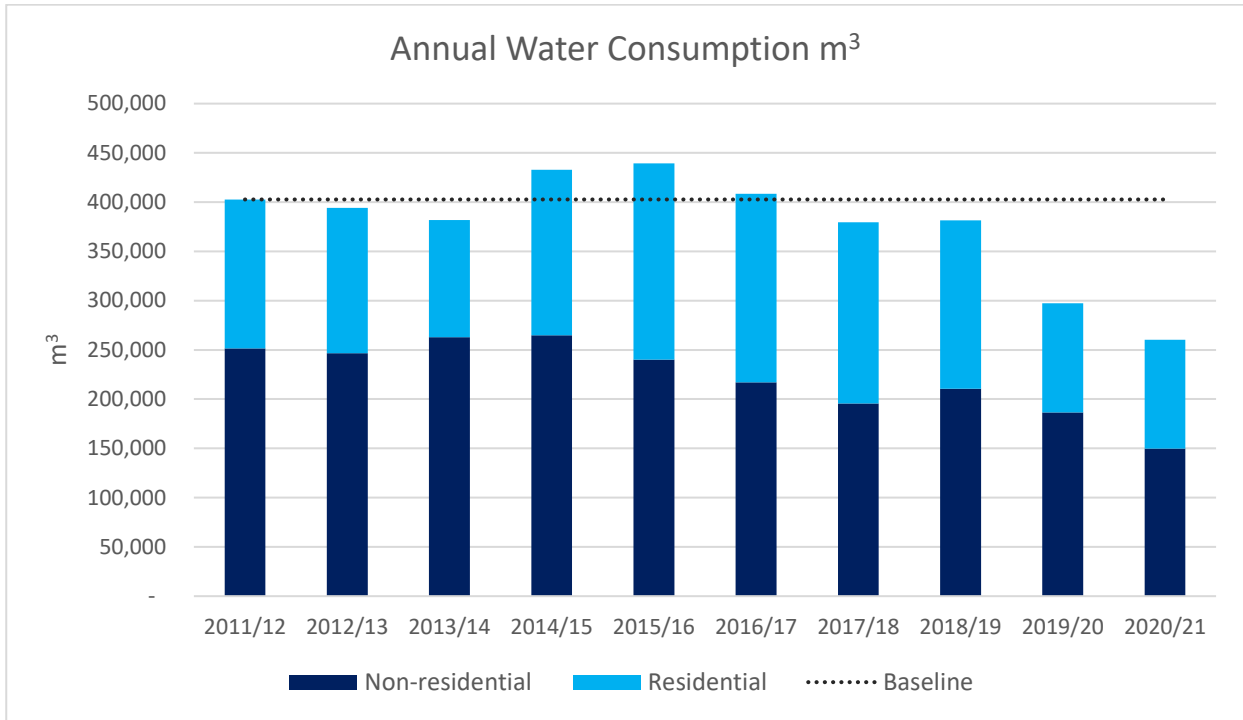


Figure 1 - Annual water consumption

NB: Between 2011/12 and 2013/14, significant changes were taking place with halls provision, with Childs Hall, Stenton Townhouses and Bridges Hall opening during this period.

Anticipated estate changes and student growth

The University is in the process of writing a new Estates Strategy. Once complete, this water management plan should be reviewed to ensure it takes into account any potentially significant changes in its water demand in the years ahead.

The student population is anticipated to grow in the coming years, which is likely to increase demand for water. This will largely be reflected through related estate changes.

Water Efficiency

Water efficiency opportunities are primarily centred in two broad areas - washroom provision and science laboratory systems/equipment.

Washroom provision

In summer 2020, the University, with the support of Thames Water, undertook a campus-wide review of water consumption in washrooms, implementing a series of adjustments and fixes to save a substantial amount of water.

Just prior to this, the University's main water meter failed, coupled with which, implementation was during the COVID-shutdown period, making measurement of delivered savings initially very difficult. However, now that operations are returning towards normal and the meter has been fixed, substantial savings are in evidence, in the region of 20,000 – 25,000 m³ per annum.

Further savings in this area are therefore likely to be limited, unless the University embraces ultra-low flush technology such as Propelair toilets, which are well-adopted by other universities, but have raised some maintenance concerns internally. An initial isolated trial would therefore be a sensible starting point.

Science lab equipment

Substantial investment has also been made in reducing laboratory water usage over the last few years, including:

- A centralised vacuum and chilled water system in Chemistry teaching labs
- Asynt water condensers for the School of Chemistry, Food & Pharmacy (SCFP)
- Rotary evaporators for SCFP
- Efficient reverse osmosis water purifiers

Further savings are again likely to be limited, but should be explored further with the relevant science Schools. Improved water data will help to identify areas of focus (see 'Metering').

Water leaks

Some of the University's water mains network is ageing and leaks occur from time-to-time. Upgrades to this main infrastructure will be costly, but have been identified as a priority by Maintenance Services and feature within recent budgetary requests. Upgrades in the coming years should help to reduce leaks and also offer opportunities to improve metering provision (see also 'Metering' below).

Grey and rainwater supplies

The University has a handful of grey and rainwater systems on its estate:

- Rainwater collection systems – Hopkins and Health & Life Sciences at Whiteknights
- Greywater systems – Berry Brooke and Bourne at Greenlands

The metering on these systems is currently patchy and improving this will feature in the delivery plan which will be formulated to complement the emerging Estates Strategy.

Metering

Improving water metering on the estate is a priority. Though this has previously been identified, very little progress has been made, due to the complexity of needing to tie this in with other planned maintenance work and third parties.

In the coming years, metering targets for the University will be to:

- Ensure at least 70% of non-residential water consumption is measured at a building-level by half-hourly metering. This should specifically include the University's science buildings, which are believed to be by far the biggest water consumers.
- Ensure all its rainwater and greywater supplies are appropriately metered
- Seek to improve and integrate supplier Automated Meter Readings (AMR) through a new supply contract

Over summer 2022, a Campus Jobs role will be created to support the re-introduction of the Rita metering reading app (developed by a former University employee). A series of manual water meter readings will be taken over this period to identify priorities for metering improvements.

Targets

With many of the available water reduction options now implemented, relative targets will become increasingly relevant to continue to target water reductions per staff & student FTE.

The following consumption targets apply for 2026:

	Non-residential	Residential*
Absolute consumption	45% reduction vs 2011/12 baseline	25% reduction vs 2011/12 baseline
Relative consumption[^]	45% reduction vs 2011/12 baseline	25% reduction vs 2011/12 baseline

Carbon emission impacts

Reducing water consumption can have a mixed impact on carbon emissions. The treatment of both supply water and wastewater requires energy, so reducing water consumption can therefore reduce its associated emissions. However, solutions to reduce water may sometimes involve technologies which use more energy; therefore a balance needs to be struck to deliver solutions which have the lowest overall environmental impact.

To put this into perspective however, water only accounts for less than 1% of the University's overall carbon emissions and therefore any positive/negative impact on emissions is expected to be marginal.

Budget

An allocation of £50,000/annum will be allocated for a combination of metering and efficiency improvements. Specific projects will be identified and costed as data improves and conversations with the science schools and others progress.