How Unitec managed to reduce its water and wastewater costs by a third

Unitec Institute of Technology is the largest institute of technology in Auckland, New Zealand with over 23,000 students across three campuses in Mt Albert, Henderson and Albany.

The Tertiary Education Facilities Management Association (TEFMA) conducts annual surveys of tertiary education facilities in the Australasian region, benchmarking institutions' facilities and resource consumption to provide vital strategic and operational infrastructure guidance. Unitec's energy consumption figures drove home the need for them to have a formalised process where conservation targets were set and performance against these targets was measured. This process also made Unitec realise the need for a Water Management Plan, since water costs are a significant variable cost for Unitec.

Unitec Environment Sustainability Manager Carolyn Cox, together with Facilities Manager Amos Sanders, formed a Water Efficiency Working group which brought together staff and students from the engineering and plumbing faculty, and Watercare Services to understand their consumption and costs, as well as industry best practices in water conservation. Watercare provided detailed reports on Unitec's water use and advice on initiatives for saving water such as wastewater audits, checking leaks and meters, choice of appliances, data logging to provide time-of-use data, grey water recycling and rainwater harvesting.

Unitec have adopted a two-pronged strategy. The facilities team changed the ground management strategy to xeriscaping, selecting plants that required little or no irrigation, focusing mainly on native species and mulching heavily with composted garden waste to reduce water loss over the summer months.

The other significant change was an upgrade to the plumbing infrastructure. The Unitec campus was formerly the old Carrington Hospital and the infrastructure is quite dated. Facilities decided to upgrade leaky pipes strategically. Instead of patching over leaking sections, whole stretches of pipes were replaced to prevent leaks and ensure lower maintenance costs in the longer term.

Students who were pursuing certificates in plumbing were enrolled to conduct water audits of all Unitec kitchens, bathrooms and laboratories. In a span of two and half weeks, students completed audits across all three campuses and spotted significant areas for improvement, including one urinal which was using an estimated $9,000 worth of water per annum. This also helped to underscore to students (and future plumbers and drain layers) the importance of factoring water conservation into their work.

As a result of these measures, water consumption dropped 24% from 2010 levels. Essentially the Institute has saved enough water to fill 10 Olympic-sized swimming pools since 2010 and the water costs went down from $495,000 in 2010 to $335,000 in 2013.

In 2013, water use was down by 8% when compared to 2012 and the Unitec sustainability team is aiming for a further 8% reduction in 2014.

Unitec has recently approved a Property Strategy which will result in many core buildings being refurbished within the next 10 years. The Unitec sustainability team sees this as an excellent opportunity to upgrade to the most water efficient fixtures and fittings possible and

is currently beginning to explore options for rain and grey water recovery, with water targets to be set to 2024.