LOCAL GOVERNMENT NSW

Case study: Waverley Park recycled water system

COUNCIL NAME
Waverley Council

WEB ADDRESS
waverley.nsw.gov.au

SIZE
9 square kilometres

POPULATION
66,812

Overview

The Waverley Park Water Recycling system is delivering significant potable water savings through expanded water tanks and distribution networks at a first class playing field and surrounding precinct. The newly installed system harvests groundwater seepage which is captured and filtered to supply recycled water for irrigation at Waverley Oval sports fields and ornamental gardens, as well as flushing toilets at Council's Margaret Whitlam Centre.

Beyond significant water savings of approximately 7 million litres of drinking water and $15,000 each year, the project improves local water quality by reducing stormwater run-off, thereby minimising pollution impacts in the marine environment. Importantly, it is improving local water security to deliver ongoing amenity and community use benefits, while increasing the resilience of the council facilities to climate change impacts such as the current drought, and demonstrating benefits of capturing, using and reusing water flows to deliver broader environmental sustainability benefits in an urban.

Background

Waverley Council is committed to ambitious water savings and water quality improvements, through their Community Strategic Plan (2018-2029). Actions include:

- Increase water harvesting through storm water harvesting schemes and rainwater capture
- Improve water efficiency of new and existing community and Council buildings and infrastructure
- Reduce pollutants entering waterways
- Increase the quantity of trees and plants in public spaces, parks and streets.

The Environmental Action Plan 3 (EAP3) also has targets to achieve a 50% reduction in Council's mains water consumption by 2020 based on 2005/06 levels, minimise sediments and suspended solids in stormwater discharged into waterways by 2020 and minimise bacterial pollution in stormwater discharged into waterways by 2020.

In order to meet sustainable water targets council monitors sites to identify alternative water sources. The upgrade of facilities at Waverley Park identified a rainwater tank not operating to capacity in a site with year-round demand for recycled water for toilets, irrigation of associated gardens and playground and amenity requirements. By analysing data Council identified an opportunity to redesign and augment the water harvesting system at the Park to maximise recycled water use.

Implementation

The preliminary work focused on improving irrigation reliability by increasing the capacity for storage and treatment of seepage flows, mitigating risks regarding the availability and quality of onsite bore water. This resulted in the following key objectives:

- To manage irrigation of Waverley Oval, sports fields and park with recycled water
- Ensure sparing use of water in Waverley's buildings, gardens, businesses and Council operations.
- Ensure Council minimises pollutants in stormwater discharged into waterways.

Council's sustainability team provided the in-house expertise to manage the design and construction of the works. The team ensured a robust monitoring and evaluation program was in place, using the Melbourne Water's offset scheme framework to assess pollutant removal. On-site sensors are linked to the C-more telemetry control system and the

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Azility data visualization platform to enable ongoing monitoring and operational oversight. The total budget was $360,000 which was expended over 18 months.

Outcomes

Project development occurred over two years, however works were undertaken from January 2018 to May 2019 including tendering, construction, commissioning and nine months of operation. Evidence of improved water efficiency and water quality outcomes exist and include:

- Over 6.9 million litres of water harvested and reused in nine months.
- On-track to exceed projected annual water savings of 7 million litres and cost savings of $15,000 per annum.
- Applied the framework from the Melbourne Water offsets scheme as an innovative approach to valuing the pollutant removal performance of the project. On track to exceed projected pollutant removal performance of total nitrogen (TN) removal valued at $82,800 per annum and total suspended sediment (TSS) removal of 35 Kg per annum.

Along with these financial and environmental benefits, the system is enabling improved management of council facilities and open spaces, improved water security in times of drought, helping to demonstrate environmental sustainability leadership. An unexpected outcome was the discovery of an old undocumented stormwater line which was modified and connected to the system to harvest additional water.

Key Learnings

Now that the system is complete and operating optimally, council will continue to benefit from the project for years to come. Future opportunities to educate the community about the benefits of water reuse onsite have been identified, as despite water restrictions in Sydney the site is looking lush and cool.

Contact

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This project was the 2019 winner of the Water Management Award at the LGNSW Excellence in the Environment Awards