

Case study: Parkes Recycled Water Scheme

COUNCIL NAME

Parkes Shire Council

WEB ADDRESS

parkes.nsw.gov.au

SIZE

5,958 square
kilometres

POPULATION

14,608

Overview

Like most, Parkes Shire Council is suffering through what has been called the worst drought in living memory. Construction of the Recycled Water Scheme (RWS) has delivered water-conservation infrastructure that will drought-proof public greenspaces. The RWS brings substantial benefits to the community by providing the water-constrained town with an additional, drought-proof water source, allowing significant reuse of effluent, reducing both environmental discharges and raw water consumption and ensuring the council receives two uses from the same water.

Background

Being remote from all three of its raw water sources, Council relies on continuous, energy-intensive pumping to sustain water supply. As such, water security is not only a matter of water availability but also subject to disruptions associated with extreme weather events impacting Council's extraction and transfer pump assets.

Construction of the Recycled Water Scheme (RWS) is part of the Integrated Water Cycle Management (IWCM) strategy initiated by Council in 2005. The strategy informs the planning of water supply, sewerage and stormwater services in an integrated way to ensure water servicing is efficient and cost-effective. The strategy also enables Council and the community to address immediate urban water challenges, deciding how best to deliver safe, secure and sustainable urban water services into the future.

Implementation

An extensive stakeholder engagement program was embarked upon to develop relationships with the community, contractors, existing staff and Council's appointed panel of experts who were involved in finalising the project objectives, scoping and oversight of project delivery and undertaking climate change risk assessments for the RWS infrastructure.

Stakeholders provided feedback through collaborative workshops and intensive meetings to further shape the environmentally conscious development of designs, which were exhibited for public feedback. The Community Project Reference Group was established to document the ideas and concerns of key stakeholders, allowing the project team to tackle these issues. Local involvement to deliver as much return on investment to the community as possible was promoted and ongoing campaigns to keep the community up to date with construction were provided.

Clear expectations were set around environmental and sustainability outcomes to contractors, and the process was used to teach local businesses how sustainability principles are used to guide procurement. During the design phase, discussions from all involved parties set the criteria for best practice water management and sustainability outcomes, including the decision to pursue the Infrastructure Sustainability Council of Australia ratings.

Council funded \$12.175M of the project and secured additional funds through the National Stronger Regions Fund (\$8.725M). The project also created 86 jobs during construction, with three permanent jobs arising from the implementation of the new scheme.



Additional goals included maintaining and improving community amenity by ensuring green spaces through drought, adopting innovative approaches to water service provision, providing economic stimulus by supporting population, economic and tourism growth and reducing the energy footprint from water supply. These goals were developed through the Integrated Water Cycle Management planning process.

Outcomes

The RWS delivers recycled water to selected playing fields and parks, as well as to the Golf Club and Jockey Club that previously received treated effluent. The Advanced Water Recycling Facility's (AWRF) treatment and disinfection processes have created a drought-proof water supply for the irrigation of public green spaces in Parkes, and significantly reduces demand on potable supplies. It maintains the vitality of the urban greenspaces for not only the communities wellbeing and health, but also for the Parkes tourism industry which attracts up to 25,000 visitors for the Elvis Festival and up to 21,000 sporting visitors for national and regional sporting events.

Energy savings associated with not having to pump and treat potable water amount to 42 MWh per year. The existing 107 kW solar array at the new sewage treatment plant (STP) was augmented with a further 191 kW Solar PV to support the AWRF. The 297-kW system will offset annual energy consumption and greenhouse gas emissions of the STP and AWRF combined by 46%, or 407 MWh per year.

Key Learnings

In the past year Parkes has received numerous requests for connection to the RWS. Due to enthusiastic community support Council is investigating a possible extension of the scheme to cater for additional third-party customers. Value-added programs were incorporated into the RWS including resealing Harrison Parks parking surface for more suitable parking, as well as a new town entry garden restricting unofficial parking whilst creating a more visually pleasing entry to the town.

Feedback reiterated the demand for a dedicated bush tucker garden to support Wiradjuri education programs run in local schools. This garden is alongside an existing Aboriginal cultural precinct. The initial foundations for the Bush Tucker Garden are being implemented with in-kind support from Council. A local Wiradjuri elder was engaged to survey the entire length of the pipeline before, during and after construction to ensure that Aboriginal heritage was conserved.

Stringent construction sustainability objectives are costly and can create tensions between client and contractor, even with contractual incentives. A key next step for the project is the implementation of a smart control system that will predict water demand and devise allocations to ensure that the recycled water is used efficiently, and will prevent sites from irrigating in high wind or rain.

Contact

Name: Julian Fyfe

Position: Infrastructure Technical Manager

Phone: (02) 6861 2333

Email: Julian.Fyfe@parkes.nsw.gov.au

This project was the 2019 winner of the Sustainable Infrastructure Award at the LGNSW Excellence in the Environment Awards



Pipeline construction



Wiradjuri Elders Robert Clegg, Peter Clegg and construction foreman Kieran Lynch conducting site inspections