

# ISC Case Study



## Parkes Shire Council: Thinking differently about blue and green infrastructure

*Parkes Shire's gold mining era is long past. However, Parkes Shire Council has secured the long-term supply of an equally precious resource, water, while building new natural capital, uplifting its sustainability skills and transforming the way its team approaches infrastructure delivery.*

*"We didn't see an IS accreditation as a prize or end goal. Instead, we used it as a framework to drive new thinking and behaviours, to build our internal capacity and to start a process of continuous improvement."*



**Andrew Francis**  
Director Infrastructure, Parkes Shire Council

### Overview

Parkes Shire, in the Central West of New South Wales, is home to around 15,000 people. Unlike most regional towns, Parkes is remote from its water sources. The Lachlan River and a borefield within the Upper Lachlan Alluvium, supply most of the town's water needs and are more than 30 kilometres away and 125 metres below the town.

"Most regional towns develop near a permanent water source, and only need to look further afield when they outgrow their local supply," says Parkes Shire Council's Director of Infrastructure, Andrew Francis.

Parkes' geography also lives up to Australia's reputation as a wide brown land, and any green and outdoor recreational space requires regular municipal irrigation.

"Pumping our water uphill is energy intensive and costly. Neighbouring councils can have energy bills just one sixth of ours simply because they are sited adjacent to a river."

With the production cost of recycled water half what it is to pump water uphill, Parkes Shire

Council embarked on an ambitious overhaul of its water treatment facilities in 2014.

The first \$80 million project saw the development of two new facilities to treat water and sewerage, together with an advanced water recycling facility, sewerage pumping station and rising main that conveys inflows to the new treatment plant. The new sewerage treatment plant replaced the original facility constructed in 1936, while the new water treatment plant doubled the capacity of its predecessor to 16 million litres per day.

The recycled water scheme – which Council calls its "climate resilient water supply" and which reclaims around 250 million litres of wastewater each year – is more than an additional water source. Because it is local, it does not require additional energy-intensive pumping and avoids the release of large volumes of effluent into the environment.

The water recycling facility is powered by a 197-panel solar array that offsets energy consumption. The ultraviolet and chlorination stations at the facility were carefully sized so the facility can run during daylight hours, maximising solar energy use, with the balance sourced from off-peak electricity.



“Every drop of water we can recycle is worth up to three times what it would be for a utility that is adjacent its water source,” Andrew adds. “While this project came with a capital price tag, its cost to operate over a 20-year period will be a drop in the ocean by comparison.”

The projects – impressive in their own right – were complete in 2017 and were among the first for councils in Australia to be verified by the Infrastructure Sustainability Council with the IS Rating Scheme.

Sustainability in the infrastructure industry has advanced at a rapid rate in the following five years. But the lessons learnt by Parkes Shire Council show how certification can build internal capacity and transform the way councils think about sustainability.

## Key lessons

### 1. Upskill to uplift

When Council embarked on the \$80 million capital works project, Andrew and his team saw an even bigger opportunity. “We knew that delivering the water and sewerage treatment infrastructure was just one measure of success. Another was having a legacy of skills uplift beyond the infrastructure itself.”

The IS framework and rating process aligned Council’s team around a shared goal. “It put a flag in the ground on sustainability.”

The cost of pursuing a rating was “far outweighed by the benefits” and the commitment to IS enabled Parkes Shire Council to secure more generous funding from the NSW Government. “The sustainability initiatives have delivered a positive return on investment and subsequent ratings will be smoother and less costly,” Andrew says.

“We wouldn’t have been successful if we hadn’t built our capacity and understanding of ESD principles and how they applied to the infrastructure lifecycle. We’ve built our internal capabilities across sustainable procurement and processes, as well as the IS framework, and that has given us the confidence to tackle more projects in a similar fashion.”

Council’s internal sustainability specialisation has grown from 0.5 full time equivalent resources before the project to three FTE today. This has allowed Council to continue its focus on sustainable procurement, energy efficiency and renewable investment across its portfolio.

### 2. Forecast the future

As part of the IS process, Council undertook a climate change risk assessment which uncovered a range of opportunities to boost the resilience of the new water and sewerage treatment infrastructure. “We looked at what demand would be in 50 years, and overlaid climate impacts. We looked at the efficiency gains we could achieve and how that would balance out against the upfront capital cost,” Andrew says.

[AdaptNSW’s climate modelling](#) suggests the number of hot days in Parkes Shire – those with daily temperatures above 35°C – will increase by up to 30 a year by 2070. Rainfall patterns will become more variable, and severe fires and extreme weather events are likely to increase. Intense storm events will place a great strain on stormwater systems and waterways downstream.

Following the climate change risk assessment, critical systems and site infrastructure were located above potential flood zones. A dam-break early warning system was installed at Lake Endeavour Dam and sludge lagoons designed to prevent runoff intrusion. Open tanks and lagoons were expanded to accommodate one-in-100-year rainfall events. The large capital investment in infrastructure has been complemented with education to “build community understanding of water scarcity and demand management thinking in a changing climate,” Andrew adds.

*“Verification is as important as the action itself. How do we demonstrate to a third party what we’ve done? After working with IS, ‘Don’t tell me, show me’ became our mantra.”*



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Director Infrastructure, Parkes Shire Council

### 3. Invest in natural capital

Building a new sewerage treatment plant created an unmissable opportunity to enhance the Shire’s natural capital – and the project was verified by the IS Council for improving the ecological value of the site by more than 20%.

A fishway was constructed within Goobang Creek, strategic revegetation of corridors connected remnant paddock trees with fragmented patches of Fuzzy Box woodland, and the former sewerage treatment plant’s ponds transformed into permanent wetlands for water birds and waders.

Today PAC Park – named after the Parkes Advancement Corporation – is a thriving wetland home to native birds, turtles, yabbies and frogs.

Council leveraged the project to apply for additional grants for barbecue shelters and seating which has expanded recreational opportunities on site. The 16 kilometres of paths and cycleways attract local joggers and cycling clubs, while bird watchers flock from as far afield as Perth. And PAC Park is also an ‘outdoor classroom’ for schools and community groups to undertake environmental education.

“Ecotourism wasn’t something we had considered before, but alongside the ecological value and the social capital, we can also see economic opportunities for our community,” Andrew says.

### 4. Document to demonstrate

“A first-time IS rating is never easy. New processes, practices, and information you never thought you would need, must be documented,” Andrew notes. But the process sparks a shift in mindset.

*“Achieving our first IS Rating was a considerable commitment. But it helped us to build our internal capacity, capability, frameworks and policies that have lasted beyond the life of the project and lifted the sustainability skills of our entire Council.”*



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Director Infrastructure, Parkes Shire Council



Council learnt that documentation is as important as doing. “The biggest uplift in our capability was achieved when we retrospectively verified what we’d done. This changed our thinking and helped us to see how we could embed sustainability and quality at the point of decision-making.”

Now, as Parkes Shire Council moves towards a net zero emissions goal, it has a “more streamlined” and systematised approach to data collection and reporting. “We’ve improved our annual reporting, purely by building this systematic approach into the way we work, and by rethinking how we capture and maintain data for quality reporting.”

### 5. Lay a foundation for further leadership

Council’s first IS certification laid a strong foundation for five more sustainable water projects which represent one of the largest investments in water infrastructure in regional New South Wales.

The projects, with a combined value of \$61.7 million, include 39 kilometres of pipelines to link new and existing infrastructure, two new pump stations, and an upgrade to the Lachlan River pump

Two new pre-treatment plants are under constructing, as is a new raw water dam at Parkes water treatment plant.

On completion, Council will more than double the transfer capacity from the Lachlan River to Parkes.

Meanwhile, the projects completed in 2017 continue to deliver dividends. “Even at the height of the 2019 drought – which was much hotter and dryer for us than the 2009 Millennium Drought – we could maintain our green spaces because we recirculate our wastewater. Our green and blue spaces of respite were retained, and the town didn’t suffer a decline in tourism.”

Today, Parkes sits at the only junction of Australia’s two rail spines, the Inland Rail and the Trans-Australian Railway, and is recognised as a [special activation precinct](#) by the NSW Government. As the town’s population and economic importance grow, Parkes Shire Council has invested in a secure water supply and the skills it needs for a sustainable future.

