

Blacktown Showground Precinct Water Sensitive Urban Design Redevelopment

COUNCIL NAME

Blacktown City
Council

WEB ADDRESS

blacktown.nsw.gov.au

SIZE

240 square kilometres

POPULATION

299,797

Overview

The Blacktown Showground Redevelopment represents a holistic integration of water sensitive urban design (WSUD) principles into a significant recreational space for the community. When planning the redevelopment of the site, Council identified four problems that needed to be solved:

- the showground precinct was consuming very high quantities of potable water
- the site was not capable of handling high flows
- the water quality of stormwater flowing through the showground was very poor; and
- the site was underutilised by the community.



Photo: Blacktown Showground Precinct

Background

Blacktown aspires to be a Water Sensitive City. Specifically Council must “pursue best practice sustainable water management to protect and improve the water quality of the local environment”. The Blacktown Showground was one of Council’s top water consuming assets. The possibility of saving water and providing an example of WSUD was raised by the Blacktown Showground Redevelopment Steering Committee in 2009, and integrated into the Redevelopment Masterplan in early 2010.

Before the redevelopment, the site used on average 6.7 megalitres (ML) per year to irrigate the oval, gardens, open space and Council nursery. Having identified a stormwater source on site it was determined that the redevelopment could result in significant reductions in potable water consumption.

Prior to redevelopment, the creek that runs through the centre of the site from west to east was regularly inundated with storm surges, causing significant erosion. Over time, large quantities of sediment were removed and carried downstream. Water quality testing was undertaken in 2011, which identified the polluted nature of stormwater entering the site (particularly during storm events). The results showed high levels of oils, heavy metals and litter. As a result,

REFERENCES

www.meanwhileoutsider.com/bcc/smart-water-management/

Council resolved to ensure that water leaving the site was better quality than stormwater entering the site.

The Blacktown Showground WSUD Redevelopment, therefore, had four main objectives:

1. Reduce potable water consumption
2. Reduce bank erosion and the export of material off-site
3. Improve the quality of stormwater leaving the site
4. Create an example of how to integrate WSUD principles in a project that is inclusive of the community.

Implementation

Construction began in July 2011 and was completed in July 2013. The water harvesting, treatment and reuse aspects of the Showground redevelopment cost \$1,270,000. The stormwater harvesting components of the redevelopment are broken down as follows:

1. Gross Pollutant Trap (GPT)
2. On-site Stormwater Detention (OSD) tanks and basins
3. Diversion Structure – This directs the stormwater from the catchment and OSD into the treatment system
4. Bioretention Basin - Stormwater permeates through the filtration media
5. Storage tanks located under the Plaza
6. The wetlands
7. Creek Line – The creek line has been revegetated and the banks stabilised to reduce erosion
8. The Eastern and Western carpark – both carparks drain into three raingardens.

Outcomes

The redevelopment has placed Water Sensitive Urban Design at the heart of a revitalised community asset. The performance of the WSUD Redevelopment has been monitored and assessed over the last 12 months and all objectives have been achieved.

The habitat value of the wetlands and the speed at which they have been colonised were both unexpected outcomes. Over seven species of water birds have been recorded in the wetlands since redevelopment.

When tested, the collected water achieved water quality objectives and Council was able to begin utilising the water for irrigating the sportsfield, gardens and for flushing toilets in the amenity building and café. During the 2013-14 financial year, the project has saved over 2.9ML of water. It is expected that water savings will significantly increase once all teething problems are solved.

The creek line has been completely re-engineered. The banks have been constructed and reinforced to withstand a 1 in 100-year flood event. Hardy native shrubs and young trees now stabilise the banks and this has resulted in very little material moving off site during heavy rain events. Prior to the redevelopment, the site saw little community traffic during the week or outside of specific events. The Showground now receives very heavy community use every day of the week.

Key Learnings

- Amenity - A major challenge of the redevelopment was balancing recreational amenity with water usage and quality outcomes. The wetland design consultants were able to assure Council that the wetland would improve the site's visual amenity and not produce an odour.
- Replication - The success of the redevelopment has led to increased acceptance of WSUD by other areas of the organisation.
- Reporting - As an initiative which was fully funded by Council, there was no external or independent reporting or promotional requirements.
- Next Steps - Efforts are now focused on maintaining the new asset and ensuring that water quality and consumption outcomes are achieved. Water testing is now carried out on samples and smart meters are to be installed on site so that water use can be monitored in real-time and consumption patterns analysed.

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This project was the 2014 winner of the Water Conservation Award at the LGNSW Excellence in the Environment Awards.