



Waste Disposal and Water Management in Australia

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Shoalhaven City Council

Benefiting from 'Best Practice' Environmental Management

Article by Anthony T Schmidt

Located 165 kilometres south of Sydney along the picturesque New South Wales South Coast, Shoalhaven City Council provides an excellent example of the many benefits that can result from balancing regional growth with 'best practice' environmental and waste management operations.

From residential waste collection and disposal, through to recyclables and green-waste collection and processing, litter control strategies and landfill operation and management, Shoalhaven City Council has developed all aspects of its waste management strategy with a focus on maximising environmental protection and developing truly sustainable operations.

Strong Regional Growth

Encompassing a total area of some 4,660 square kilometres, Shoalhaven City Council stretches from Berry in the north through to North Durras (near Batemans Bay) in the south, and forms the largest local government area in the NSW Illawarra Region. With the majority of settlement located along the

coastal fringe, many of the Shoalhaven's 49 towns were originally established as fishing villages and agricultural communities.

Highly regarded for its natural beauty and pristine environment, almost 72% of the Shoalhaven's inland area (some 3,000 square kilometres in total) is comprised of national parks (including the Morton and Budawang National Parks), State Forests or NSW Crown Land. The combination of nearly 1,000 kilometres of scenic coastline and extensive unspoilt bushland reserves, together with easy access to Sydney and Canberra, has made the Shoalhaven a favourite destination with tourists and new permanent residents alike.

Shoalhaven City Council is now home to some 88,000 permanent residents, and with strong annual growth averaging 2.4%, the City continues to grow at a steady rate. Together with a booming tourism industry, the Shoalhaven also boasts burgeoning growth across an array of industry sectors, including: Dairy Farming and Processing; Manufacturing (including paper production); Defence; Fishing; Agriculture; Viticulture; Education; and Retail.

• Based in Nowra on the NSW South Coast, Shoalhaven City Council encompasses an area of some 4,660 square kilometres. The Council's waste management strategy focuses on developing sustainable operations that help to protect the City's pristine environment.

(Photo: Anthony T Schmidt)



Balancing Environmental and Economic Sustainability

Needless to say, developing a waste management strategy to suit an area such as the Shoalhaven, which has a relatively small permanent population spread over a massive geographic area, presents the Council with a range of additional challenges when compared to a densely populated urban area.

In addition, factors such as seasonal

Barry Russell, City Services Division Manager with Shoalhaven City Council, commented:

“When it came to developing the waste management strategy, Council’s primary objective was to provide a range of sustainable services that focussed on minimising environmental impact whilst remaining economically viable and customer focussed. Importantly, we had to ensure that our



Shoalhaven City Council's waste management and recycling services have been established with the ability to cater for the massive seasonal fluctuations that result from a quadrupling of the population during holiday periods.

(Photo: Anthony T Schmidt)



Council's mobile 'Recycling Trailer' provides easy access to recycling services at community events and during peak times at popular tourist destinations.

(Photo: Anthony T Schmidt)

demand play an important role in planning waste management services. Considering that the City’s population climbs to over 300,000 during an average holiday season, ensuring that the waste management services are able to cope with the resulting fluctuations in the amount of waste and recyclables being generated, is critical to their success.

services would also be able to meet the extra demands associated with the seasonal influx of visitors to the City.”

“As is the case in major cities and metropolitan areas throughout Australia, the regional populace is better informed (and more concerned) about environmental protection than ever before. This has resulted

in ever-increasing demands being placed on regional and rural councils to provide a full range of 'world's best practice' waste management services. Whilst these community expectations are by no means unreasonable, finding a way to deliver these services in an affordable manner is perhaps one of the biggest challenges facing rural and regional councils today", he added.

Residential Waste and Recyclables Services

In keeping with Council's focus on environmental sustainability, each of the City's waste management services have been developed with a focus on maximising resource recovery and minimising the total amount of waste being disposed of at the City's landfill.

Top: Transfer station facilities incorporate areas for the collection of old car batteries and used motor oil.

Above Right: Shoalhaven has established a network of nine transfer stations at key locations throughout the City.

Below Right: Bales of recyclable plastic ready for transport from Shoalhaven Recycling's Nowra MRF (Materials Recovery Facility).

Bottom: The Nowra MRF processes some 300 tonnes of recyclable materials each week.

(Photos: Anthony T Schmidt)

The City's weekly garbage collection service gives residents the option of selecting either an 80-litre, 120-litre, or 240-litre MGB or 'wheelie bin' to meet their disposal requirements - with annual service charges levied in accordance with the selected bin size. Interestingly, over 84% of Shoalhaven City Council residents selected the 120-litre capacity MGB for the weekly waste service.

Contracted to SITA (formerly PWM), Shoalhaven's weekly waste collection service incorporates some 45,000 services. The collected waste is taken to Shoalhaven City Council's West Nowra Landfill for disposal.

The residential waste service is complemented by Council's fortnightly co-mingled residential recyclables collection (also contracted to SITA) which utilises a 240-litre capacity MGB.



Introduced in July 2000, the co-mingled service incorporates the collection of a full range of recyclable materials including: paper and cardboard, a range of recyclable plastic containers, HDPE, aluminium, steel cans (including aerosols), liquid paperboard milk and juice cartons and glass bottle/jars.



Above: Greenwaste from the City's transfer stations and on-call service is mulched and composted under contract by Soilco at their purpose-built processing facility in Nowra. Below: A percentage of the composted material is utilised at the West Nowra Landfill as part of the revegetation process for filled and capped cells.

(Photos: Anthony T Schmidt)



The collected recyclables are taken to a local MRF (Materials Recycling Facility) in Nowra, where they are sorted, separated and baled, ready for transport. Owned and operated by local company Shoalhaven Recycling, the facility processes some 300 tonnes of recyclable materials each week and supplies a range of secondary raw material end-users

throughout Australia. Approximately 30 % of Shoalhaven's total kerbside domestic waste stream is diverted for recycling.

Maximising Economies of Scales

Another key factor in Shoalhaven City Council's success in balancing environmental and economic sustainability stems from its focus on developing services and facilities that provide the highest possible 'economies of scale' from each of the waste and resource streams.

As an example, rather than continuing to operate numerous small tips/landfills, the Council has reduced its total number of landfill operations from 25 down to 3 - incorporating one major putrescible landfill and two smaller 'inert' landfills, both of which include on-site transfer station facilities for putrescible waste.

Importantly, the rationalisation of the City's landfills was complemented by the establishment of six additional waste transfer station facilities at strategic 'satellite' locations throughout the Shoalhaven, each of which feature separate collection areas for waste, greenwaste and a variety of recyclable materials.

"Rationalising our landfill operations and developing a network of transfer stations has delivered a range of benefits to both Council and the City's residents. Whilst enabling Council to focus on developing and operating one fully-engineered putrescible landfill site,

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the transfer stations ensure that residents throughout the City have easy access to drop-off facilities for recyclables, greenwaste and waste”, Barry Russell added.

Council’s waste transfer facilities are serviced by a combination of hook lift and front lift bins using 42 and 4.5 cubic metre capacity transfer bins. Domestic waste from residential collection vehicles is disposed of at Council’s Ulladulla transfer facility for haulage 75 km to the West Nowra landfill.

Fully-Engineered Landfill

As well as demonstrating Shoalhaven City Council’s commitment to recognised ‘best practice’ waste management operations and facilities, the City’s Landfill Rationalisation Strategy also highlights the changing face of waste management in rural and regional Australia.

Prior to the implementation of the Council’s landfill rationalisation plan, the Shoalhaven City Council area once contained no fewer than 25 small waste disposal sites, many of which had been operating over many decades as old style ‘tips’. Following an assessment of each of the sites, Council decided that the best option would be to centralise their landfill operations, developing the existing West Nowra site as the City’s only putrescible landfill, whilst initiating post-closure plans for the remaining sites. The success of this strategy is apparent at both the revamped West Nowra landfill and the old post-closure sites – several of which

have already been reincorporated into the surrounding national park areas.

With an estimated remaining operating life of some 25 years, the West Nowra Landfill incorporates a full range of state-of-the-art environmental controls, including a fully-engineered liner system, leachate collection and reuse, and landfill gas collection and power generation.

Leachate and Landfill Gas Utilisation

Recognising the importance of protecting the Shoalhaven’s pristine environment, the Council has placed a particular emphasis on minimising the impact of the landfill’s operation.

Each of the West Nowra landfill’s fully-lined cells have been designed to prevent leachate migrating from the site into the surrounding environment, including nearby natural water courses and the ground water table. The collected leachate is pumped into an on-site holding pond, for use in a closed system irrigation area.

The West Nowra Landfill also features a landfill gas collection and electricity generation facility, which was established as the result of a partnering arrangement between Shoalhaven City Council and Australian energy utility company AGL. Landfill gas is extracted from the site under negative pressure via a network of gas collection wells, with the gas then piped to the site’s fully self-contained generation plant. Electricity from the 1-Megawatt facility is fed into the power grid for sale to consumers as part of Australia’s rapidly developing ‘Green Energy’ program.

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Landfill gas from the City’s West Nowra Landfill powers an on-site 1-Megawatt generating plant, producing electricity for Australia’s rapidly developing Green Energy’ program.

(Photo: Anthony T Schmidt)

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Transfer Stations and 'Revolve' Reuse Facilities

Located at convenient locations throughout the City, Shoalhaven's network of nine transfer stations have been designed with a focus on maximising resource recovery and minimising the total amount of waste-to-landfill. The transfer stations include separate collection areas for a range of recyclable materials, greenwaste and reusable materials, as well as areas for the collection of items such as old car batteries and waste oil. Items that are deemed suitable for reuse are marketed through the City's network of ten 'Revolve' facilities.

Established as public second hand market facilities or reusable items, the Revolve centres have been incorporated into each of the City's transfer stations, as well as a major Revolve centre at the West Nowra landfill.

As well as proving to be extremely successful in terms of reducing the total amount of waste being disposed of in the City's landfill, the Revolve reuse centres have also developed into a growing 'cottage industry' in their own right - providing a wide range of useful and extremely affordable goods and materials, whilst highlighting the benefits of effective recycling and reuse.

Driven by an ever-increasing public demand for second-hand goods, the Revolve centres have become popular 'shopping' spots for many of the City's residents. In fact, the demand for these reusable items is such that

the Centre's now employ in excess of twenty full-time staff.

On-call Greenwaste and Bulky Waste Services

As one might expect in a rural City such as the Shoalhaven, 'city pride' and a strong sense of community abounds, and as such, Council places a heavy emphasis on community consultation and participation - taking a true 'community partnering' approach to the development and delivery of services and facilities. One service area where the benefits of this approach are particularly evident is that of Greenwaste collection and processing.

Community consultation demonstrated that the favoured option for the City's Greenwaste service was to establish an 'on-demand' service rather than a regular fortnightly kerbside collection, which Council's research demonstrated would be under-utilised, and therefore neither cost-effective nor sustainable.

As a result, Shoalhaven City Council established an on-call Greenwaste service which incorporates the collection of boxed or bagged grass clippings, weeds and small prunings. Charged at a rate of \$5 per collection, the service provides an affordable option for those residents who wish to utilise it.

As with the Greenwaste from the City's transfer stations, material collected through the on-call service is mulched and composted to AS 4454 standards under contract by Nowra-based company Soilco at their purpose-built Greenwaste processing facility.

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Shoalhaven City Council's 'Revolve' Centres provide public second-hand market facilities for reusable items. The popularity of the 'Revolve' Centres has seen them develop into a strong 'Cottage' industry, that provides employment for over 20 full-time staff.

(Photo: Anthony T Schmidt)

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In addition, Council also provides an on-call 'Bulky Waste' service for the collection of a wide range of household items (such as mattresses, old furniture, building materials, whitegoods, wood, toys, etc).

In keeping with the Council's focus on waste minimisation, recyclable materials are removed from the 'Bulky Waste' loads for separate processing, whilst items deemed suitable for reuse are also removed and taken to the one of the City's Revolve centres.

Both on-call services require the waste to be left inside the boundary of the customers property, thereby minimising the visual and aesthetic impact on the surrounding streetscape environment.

Litter Prevention and Management Strategy

Litter prevention and management also plays a significant role in Shoalhaven City Council's total waste management strategy.

Together with the installation of litter traps and gross pollutant traps that protect the City's waterways and beaches, Council is also focussed on preventing illegal dumping in the surrounding national parks, forests and reserves.

As difficult as it may be for many of us to

• As well as protecting urban parklands and waterways, Shoalhaven's multi-faceted Litter Prevention Strategy also focusses on preventing illegal dumping throughout the City's extensive surrounding national parks and forests.

(Photo: Anthony T Schmidt)

