WATER FOR GOULBURN

Highlands Source Project

PART B




The Project

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GOULBURN MULWAREE COUNCIL

5. Strategic context and need

5.1 Strategic context

5.1.1 Sydney-Canberra Corridor Regional Strategy 2006-31

Management of water resources is crucial for the Goulburn Mulwaree region and the greater Sydney-Canberra corridor region. Nearly 50 per cent of Sydney's drinking water catchment, as identified in the *Drinking Water Catchment Regional Environmental Plan No. 1*, is contained within the Sydney-Canberra Corridor Region. The regional environmental plan aims to manage and protect the catchment to meet water quality objectives. A key aspect of the regional environmental plan is the requirement for new development to have a neutral or beneficial effect on water quality as well as protecting the water supply of Sydney and regional centres such as Goulburn (DoP, 2008).

The *Sydney-Canberra Corridor Regional Strategy 2006-31* identifies access to reliable and affordable reticulated water as a key determinant of the extent, location and timing of housing and employment lands across the region. This is particularly the case for the area around Goulburn, where there is a need to ensure that appropriate water sources continue to be secured and that opportunities arising out of additional population growth are balanced with the ability to maintain sustainable water supplies (DoP, 2008). The Commonwealth and NSW Government is supporting the construction of a new water supply pipeline to Goulburn as part of the long term water supply for the City (DoP, 2008).

5.1.2 The National Water Initiative

The National Water Initiative (NWI) is Australia's enduring blueprint for water reform. Through it, governments across Australia have agreed on actions to achieve a more cohesive national approach to the way Australia manages, measures, plans for, prices, and trades water. The Intergovernmental Agreement on a NWI was signed at the 25 June 2004 Council of Australian Governments meeting.

Under the NWI, governments made commitments to a number of actions as listed below. The actions which this Project responds to are highlighted in bold text:

- Prepare water plans with provision for the environment;
- **Deal with over-allocated or stressed water systems;**
- Introduce registers of water rights and standards for water accounting;
- Expand the trade in water;
- Improve pricing for water storage and delivery; and
- **Meet and manage urban water demands.**

Each state and territory government was required to prepare a NWI implementation plan, accredited by the National Water Commission (NWC). Under its plan, the NSW Government committed to provide a long term, reliable source of water for the State by improving water use efficiency and by augmenting the source of supply.

This Project is one of the principal means of augmenting the source of supply proposed in the NWI.

5.1.3 Water for the Future

Australia faces major challenges in ensuring sustainable water supply in the face of drying climate and rising demand for water. In response, the Australian Government's framework, *Water for the Future*, provides national leadership in water reform.

Water for the Future is built on four key priorities:

1. Taking action on climate change;
2. Using water wisely;
3. Securing water supplies; and
4. Supporting healthy rivers.

This Project responds specifically to securing water supplies and supporting healthy rivers with the provision of water security to Goulburn comparable to that of other NSW communities and reduces the pressure on the Wollondilly River through the reduction in reliance on water extraction from this system.

The Commonwealth Government is investing $12.9 billion over ten years from 2008 to improve the security of water supplies and provide additional water for the environment through infrastructure Projects, the purchase of water licences, and desalinisation, greywater and rainwater initiatives. $1 billion of this funding will be used to implement the National Urban Water and Desalination Plan, which will support initiatives such as the Project. The NWI and *The Water Act 2007* are vital elements in this national framework.

5.2 Project need

5.2.1 Goulburn's current water situation

Goulburn mainly sources water from the Wollondilly River, which feeds Pejar Dams. Pejar Dam along with Sooley Dam release water to the Rossi Weir, the final storage prior to treatment at Goulburn WTP.

Raw water for the Goulburn Water Supply Scheme is drawn from the Rossi Weir on the Wollondilly River. The catchment area of the Wollondilly River at the Rossi Weir is about 614 km^2 and the average annual flow is about 34,000 ML/a. Drought security is provided by the local water storages including Pejar Dam located on the Wollondilly River approximately 50 km upstream of Goulburn City, Sooley Dam located on Bumana Creek and Rossi Weir located further downstream on the Wollondilly River. Pejar Dam is the largest of these storages with a capacity of 9 000 ML, whilst Sooley Dam and Rossi Weir have capacities of 6 250 ML and 330 ML respectively (DoC, 2007). The current available capacity of the Goulburn water storage is presented in Figure 5.1.

In 2007, Goulburn received widespread publicity when the city's water security recorded critically low levels with storages at 12 per cent of capacity. At this time, the Goulburn community was subject to Level 5 water restrictions which severely limited the use of water by all community residents, businesses and tourists.

The Goulburn water supply has been severely affected by recent drought conditions. The Goulburn water storages were last full in November 2000 and the storages have not overflowed since November 1996 (Figure 5.2).

Prior to the 2001-2007 drought, water use in Goulburn was about 4 000 ML/year in an average rainfall year and up to 5 000 ML/year in dry years (DWE, 2007). Due to the introduction of water saving initiatives by GMC and participation by the community, water demand in the 12 month period from October 2007 – October 2008 was reduced to 2 310 ML/year under Level 3 restrictions.

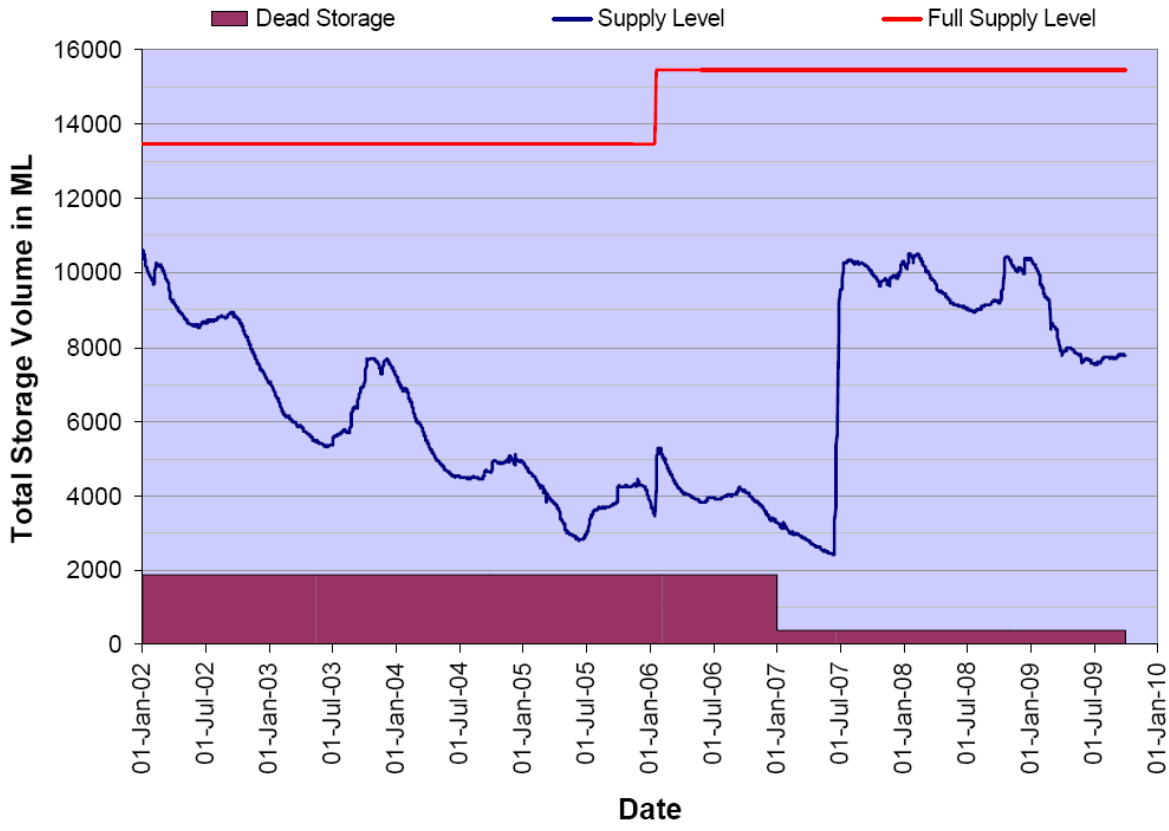

Figure 5.1 Goulburn water storage supply trace to 30 September 2009 (GMC, 2009a)

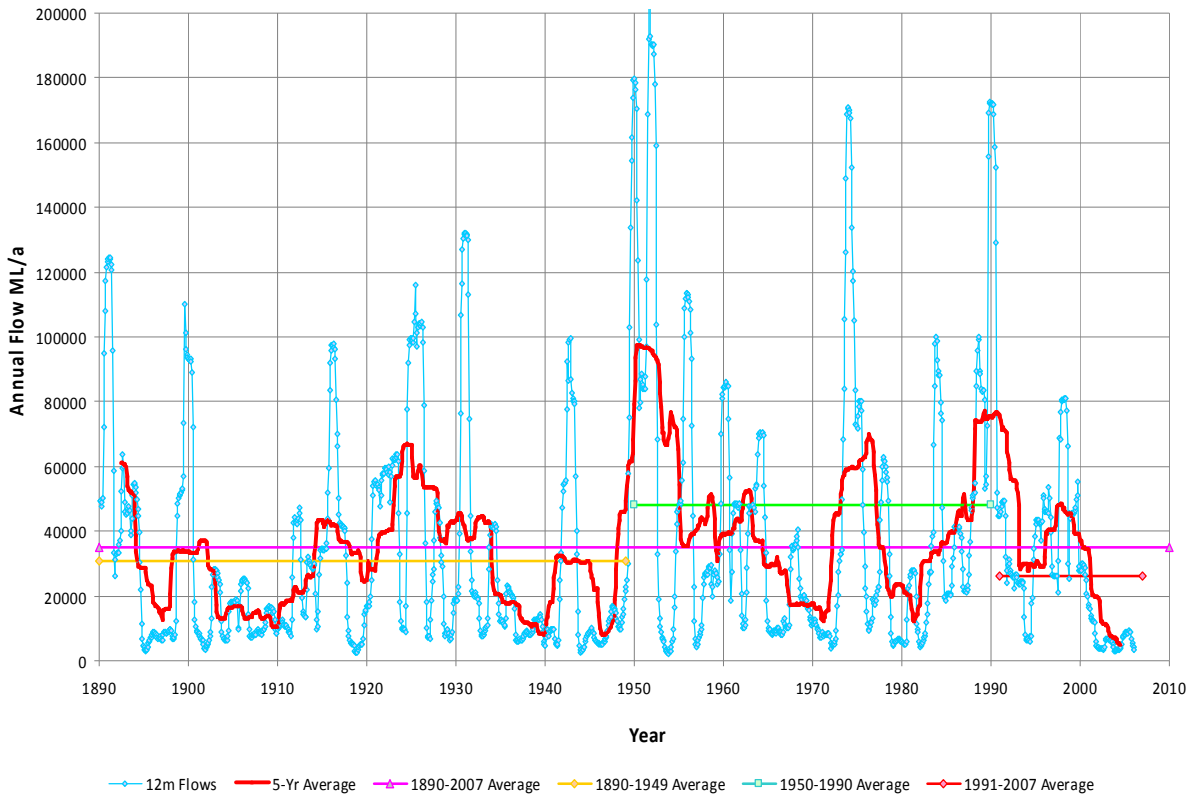

Figure 5.2 Flows above Rossi Weir (GMC, 2009a)

5.2.2 Demand management

GMC has developed a Water Management Strategy which provides options and targets for the ongoing use of the source water supply.

Looking forward, it is estimated that the unrestricted system demand would be about 3 430 ML/year for a year of average rainfall and up to 3 830 ML/year in a dry year for the year 2021 after deducting water supplied from rainwater tanks and based on a one per cent per annum population increase (DoC, 2009).

The DoC undertook modelling to determine the future household water demand in Goulburn. It is estimated that the unrestricted system demand in 2008 would be about 3 340 ML/a for a year of average rainfall and up to 3 720 ML/a in a dry year after deducting water supplied from rainwater tanks. The estimated annual demands represent overall water savings of about 25 per cent on the pre-drought figures.

The projected unrestricted water demand volumes for the average year and a drought year are presented in Table 5.1 and Figure 5.3.

There are a number of areas of uncertainty in these demand projections. Unrestricted system demands may be lower depending on the number of rainwater tanks now installed and how they are used (DoP, 2009). Water use may also be lower depending on the extent to which water-saving behaviours, which consumers adopted during the drought, convert into permanent savings after restrictions are lifted: for example, permanent reductions in garden areas watered.

Table 5.1 Goulburn Water Supply – Projected Unrestricted System Demands (DoP, 2009)

	2006 ML/a	2021 ML/a	2041 ML/a	2061 ML/a	Purpose
Average year	3 330	3 430	3 750	4 080	Calculate average operating costs
Drought year	3 690	3 830	4 230	4 650	Calculate required system yields

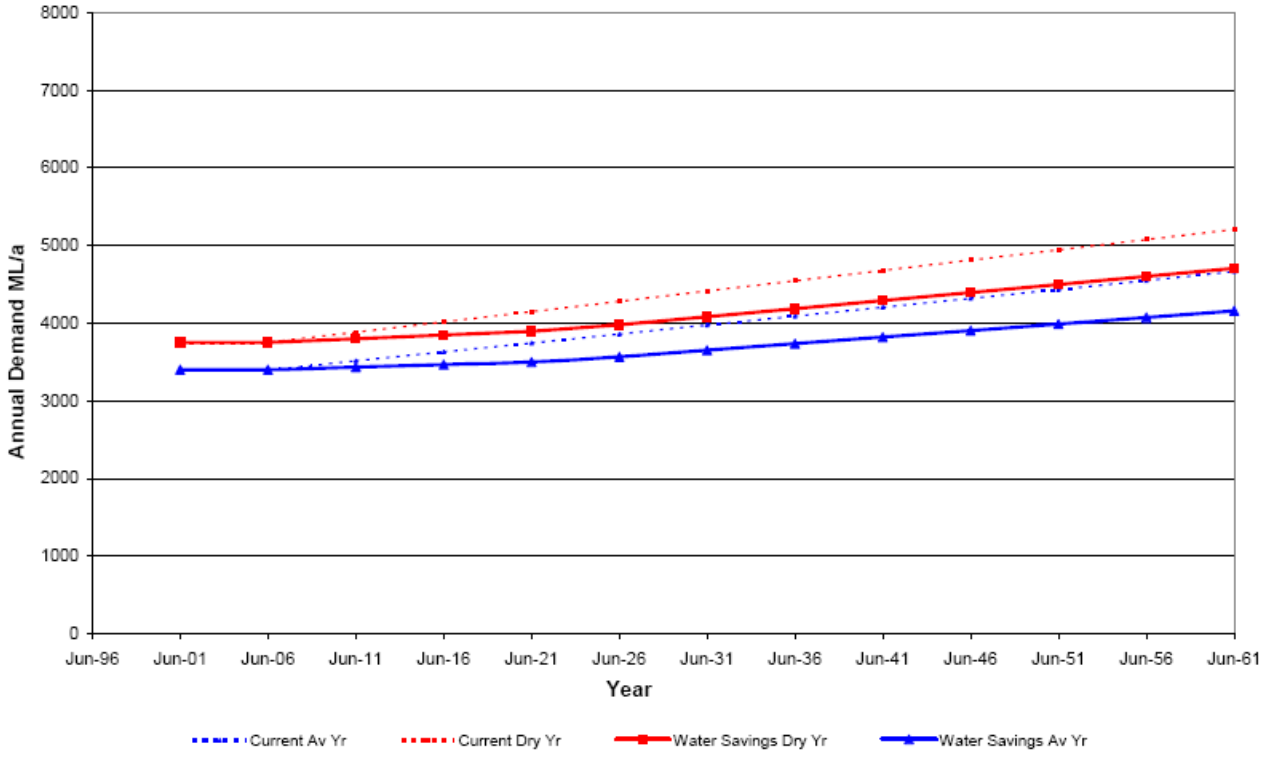

Figure 5.3 Projected Goulburn annual water demands (DoC, 2009)

5.2.3 Meeting the demand for water in Goulburn

The Project aims to sustain GMC's population and prosperity. Goulburn is a regionally important centre strategically located in both the Sydney-Canberra and Sydney-Melbourne corridors. In order to achieve its potential, Goulburn needs to secure its long term water supply.

The exhaustion of the Pejar Dam, together with an extended period of severe drought restrictions, resulted in an anticipated water supply failure within less than 12 months.

During the drought GMC commissioned a more rigorous review of Goulburn's water supply security (GMC & DoC, 2007). This assessment determined that the town's water supply was not as secure as had previously been believed and would require augmentation to avoid frequent and lengthy periods of

drought restrictions. Impacts of future climate change are anticipated to reduce the system secure yield even further.

Three options were investigated:

1. One-Way Pejar Pipeline: The option involved construction of a pipeline from Pejar Dam to Sooley Dam to avoid losses which occur when water is released down river from Pejar Dam to Rossi Weir.
2. Two-Way Pejar Pipeline: The second option was to add extra pumping capacity from Rossi Weir to Sooley Dam to harvest more water from high flows at Rossi Weir and a pump station to transfer water through the pipeline from Sooley to Pejar Dam.
3. Highlands Source: The third option involved piping water to Goulburn from the Wingecarribee Reservoir which is part of the Sydney and Southern Highlands supply system.

The review of Goulburn's water supply security determined that a pipeline connection to the SCA's Wingecarribee Reservoir was the best solution for improving the town's water security. A decision was made to proceed with detailed planning and design of the water transfer pipeline through this current Project.

5.2.4 Water to be sourced from the Wingecarribee Reservoir

The SCA manages a total of 21 storage dams (11 major dams), that hold more than 2 500 000 ML of water. Wingecarribee Reservoir is part of a network of storages known as the 'Shoalhaven Scheme'. This scheme includes: Tallowa Dam (with an available storage of 34 520 ML), Wingecarribee Reservoir (16 550 ML) and Fitzroy Falls (7 570 ML). Wingecarribee Reservoir is used as a transfer storage. Water in the reservoir can be diverted to either the Nepean storages or to Warragamba Dam. The Shoalhaven Scheme is used to top up the water supply to Sydney and the Illawarra. It also supplies the Southern Highlands and Nowra. Utilising the Wingecarribee Reservoir would allow Goulburn access to a more reliable water source from a high rainfall area.

Discussions have been held with the SCA, and the Authority has given approval in principle for Goulburn to access water. An extraction limit would likely be agreed on an annual basis between the SCA and the GMC. Additionally, the NSW Independent Pricing and Regulatory Tribunal has included a regulated price for the supply of water to Goulburn through to 2012 in its current determination (IPART, 2009).

5.3 Project benefits and objectives

5.3.1 Benefits

The Project will contribute to the future water security of Goulburn. Some specific benefits of the Project include:

- Providing a level of water supply security for Goulburn that is consistent with other communities in NSW;
- Enabling severe water restrictions to be replaced by demand management measures – while water restrictions would likely still be required, the risk to Goulburn residents of facing a repeat of the severe Level 5 water restrictions incurred during 2000 to 2005 will be reduced.
- Greater water security will provide Goulburn with improved opportunities to attract business and industry.

- Providing an alternative water source will provide environmental relief to the already stressed Wollondilly River, improving the amenity provided by the River to downstream communities.
- The Project is well aligned with re-use and demand management programs to accommodate growth in Goulburn that are currently proposed in the IWCM Strategy which is under development.
- Important community facilities, such as the swimming pool and sporting fields, will be less likely to be closed due to unavailability of water to operate and maintain these facilities.

5.3.2 Objectives

Goulburn has been subject to sever water supply restrictions since 2004 and in August 2007 the town's water supply was projected to fail in approximately 9 months based on the then current water inflows to the town's water storage dams. Since this time, Goulburn's town water supply system has received sufficient rainfall and inflows to prevent system failure, however severe shortages of water are still experienced and there remains a risk of system failure should water inflows again reduce to previous levels.

The primary objectives of the Project are to:

- Provide a reliable long term source of water to supplement Goulburn's existing water supply, via a pipeline from Wingecarribee Reservoir;
- Deliver an operating water transfer scheme by June 2011.