

Water and the Environment

Stuart Harris & Rod Kerris talking with a third party reuser

The 2005/2006 Corporate Plan set three goals for Water and the Environment. These goals were:

- Responsibly manage, protect and conserve the Authority's Bulk Water Entitlements to provide for security of supply and growth of our regional communities.
- Deliver quality drinking water which complies with Australian Drinking Water Guidelines.
- Manage wastewater in an environmentally sustainable manner and maximise opportunities for reclaimed water reuse throughout the Goulburn Valley region.

In order to implement and achieve these goals the Authority identified strategic initiatives and targets. These are outlined on the following page including the status as at 30 June 2006.



Strategic Initiatives and Targets	Status @ 30 June 2006
Participate in development of a Regional Sustainable Water Strategy with our catchment partners by July 2007.	This project has been deferred by DSE to facilitate the incorporation of information from the Water Supply Demand Strategy.
Develop and submit a draft water supply/demand strategy to DSE which includes specific and measurable water conservation goals by December 2006.	Water Supply Demand Strategy well advanced – see page 15.
Achieve 100% of the region's capacity for reclaimed water reuse/recycling (including return to stream after tertiary treatment) by July 2007.	This target is expected to be met with full reuse already occurring at most sites. Tertiary treatment occurs prior to return to stream at Shepparton, Eildon and Alexandra - see pages 19 & 59.
Develop a strategy, framework and criteria for determining when and under what conditions the Authority would consider future requests for sewer schemes and potable water supply schemes for smaller communities in the region by December 2005.	Written advice, including a template for GVW's role in the development of Domestic Wastewater Management Plans by municipal councils prepared and forwarded to all councils within the Authority's region- January, 2005.
Undertake reuse of biosolids based on the Authority's 30 year Sludge Management Strategy as amended by ESC.	Negotiations are continuing with the Shire of Mitchell regarding using the existing biosolids stockpiles for capping of landfill sites. This option is less costly than using biosolids as a soil conditioner on agricultural land.
Work with major industries to implement waste minimisation plans aiming to reduce salt discharges by 25% by July 2008.	A new trade waste agreement has been developed, and is being rolled out. Salt and water audits for major customers, partly funded by GVW, are proceeding well. Significant reductions in the sodium levels discharged by major industry across the region have occurred this year - see page 21.
Achieve 100% compliance with EPA licences and conditions.	Full compliance was achieved at all Goulburn Valley Water wastewater management facilities for 2005/2006 - see pages 18 & 59.
Achieve 100% compliance with SDWA 2003 and Regulations and approved undertakings.	All drinking water systems complied fully with the regulated standards for bacteria, turbidity and chloroacetic acid. A small number of systems experienced non-compliance against the dichloroacetic acid, trichloroacetic acid, trihalomethanes and aluminium standards. In most cases, the Authority has formalised undertakings with the Department of Human Services to provide short or medium term improvements to these systems - see page 15.
Continue to work closely with the Catchment Management Authority and play an effective and influential role in promoting the health of the region's catchment areas, with the objective of minimising GVW's risks in respect to water quality: <ul style="list-style-type: none"> • Active representation on relevant Committees and Working Groups; • Provide comment on relevant reports, position papers and other strategic documents. 	GVW employees participate in the Sevens Creek Environmental Flows Steering Committee and Reference Committee. Continuing informal liaison with GBCMA officers. No reports to comment on over the last 12 months. Participation in River Health Committee has ceased due to abandonment of this committee by the GBCMA.

Our Water Our Future

Goulburn Valley Water has a number of programs in place that will address the obligations the Authority has in relation to the Government's *Our Water Our Future* policy. Outlined below is a summary of the initiatives undertaken to meet the targets described in Chapter 5 – Smarter Water Use in Our Cities and Towns.

Reference	White Paper Action	Goulburn Valley Water Action																																																												
5.1	The Government will require urban water authorities to prepare Water Supply -Demand Strategies that identify the best mix of demand measures and supply options	The Authority is currently preparing a Water Supply - Demand Strategy for completion in 2006/2007- see page 15.																																																												
5.3	The Government will require all regional urban water authorities to develop water conservation targets within 12 months. These targets will be incorporated into Water Supply-Demand Strategies	<p>In 2004, Goulburn Valley Water adopted a Water Conservation Strategy that included:</p> <ul style="list-style-type: none"> • Implementing a Conservation By-Law to limit time of day garden watering, require trigger nozzles for handheld hoses to wash vehicles and prohibit hosing down of pavements. • Undertaking a review of the current water education program to assess its effectiveness in delivering water conservation messages. • Encouraging water audits of key industrial customers to identify water savings in their plants. This program commenced during 2004/2005 and continued during 2005/2006. • Targeting distribution system water loss savings. This program continued during 2005/2006. • Establishing targets to reduce average water consumption by 11% by 2010/11 from 2001/2002 levels: <table border="1"> <thead> <tr> <th>Demand Component</th> <th>2001/02 Level</th> <th>2010/11 Target Level</th> <th>Reduction</th> <th>2005/06 Target</th> <th>2005/06 Result</th> </tr> </thead> <tbody> <tr> <td>Revenue Volume (ML)</td> <td>26,860</td> <td>27,481</td> <td></td> <td>27,483</td> <td>25,802</td> </tr> <tr> <td>WTP Non-Revenue volume (ML)</td> <td>1,669</td> <td>1,625</td> <td></td> <td>1,673</td> <td>2,796</td> </tr> <tr> <td>Distribution Non-Revenue (ML)</td> <td>4,852</td> <td>3,397</td> <td></td> <td>4,295</td> <td>1,865</td> </tr> <tr> <td>Raw Diversion (ML)</td> <td>33,381</td> <td>32,503</td> <td></td> <td>33,451</td> <td>30,463</td> </tr> <tr> <td>Assessments (No.)</td> <td>51,856</td> <td>56,996</td> <td></td> <td>54,741</td> <td>56,232</td> </tr> <tr> <td>Revenue volume per assessment (ML)</td> <td>0.518</td> <td>0.482</td> <td>7%</td> <td>0.502</td> <td>0.459</td> </tr> <tr> <td>WTP Non-Revenue volume per assessment (ML)</td> <td>0.032</td> <td>0.029</td> <td>9%</td> <td>0.031</td> <td>0.050</td> </tr> <tr> <td>Distribution Non-Revenue per assessment</td> <td>0.094</td> <td>0.060</td> <td>36%</td> <td>0.078</td> <td>0.033</td> </tr> <tr> <td>Total demand per assessment (ML)</td> <td>0.644</td> <td>0.570</td> <td>11%</td> <td>0.611</td> <td>0.542</td> </tr> </tbody> </table> <p><i>Note: These numbers include industrial water consumption</i></p>	Demand Component	2001/02 Level	2010/11 Target Level	Reduction	2005/06 Target	2005/06 Result	Revenue Volume (ML)	26,860	27,481		27,483	25,802	WTP Non-Revenue volume (ML)	1,669	1,625		1,673	2,796	Distribution Non-Revenue (ML)	4,852	3,397		4,295	1,865	Raw Diversion (ML)	33,381	32,503		33,451	30,463	Assessments (No.)	51,856	56,996		54,741	56,232	Revenue volume per assessment (ML)	0.518	0.482	7%	0.502	0.459	WTP Non-Revenue volume per assessment (ML)	0.032	0.029	9%	0.031	0.050	Distribution Non-Revenue per assessment	0.094	0.060	36%	0.078	0.033	Total demand per assessment (ML)	0.644	0.570	11%	0.611	0.542
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5.4	The Government will require urban water authorities to introduce permanent water savings measures. These measures will be developed at the local level and will be suitable for local conditions.	Goulburn Valley Water introduced a permanent Water Conservation By-Law in January 2004.																				
5.5	The Government and water authorities will undertake community education and information programs to encourage water saving.	Education on water conservation and water quality is continuing on a number of fronts – see page 28.																				
5.6	The Government will require water authorities to make water bills more informative. This will enable households to better monitor their water use over time, and compare their consumption with households in their local area.	Goulburn Valley Water’s bills have been revised to ensure compliance with the Essential Services Commission Customer Service Code. The bill highlights water consumption compared with the previous four billing cycles for each property.																				
5.8	The Government and water authorities will develop, prior to 1 December 2004, uniform water restriction guidelines for drought response plans which will set out a recommended four-stage restriction policy for the whole of Victoria.	Goulburn Valley Water has played a lead role in a working group to develop uniform water restriction guidelines for the state. This was an initiative identified by Goulburn Valley Water in April 2003. The Authority completed a new By-Law based on the uniform guidelines which has been approved by the Minister.																				
5.12	The Water Smart Gardens and Homes Rebates Scheme will continue to support households to use water more wisely, over the next two years until 30 June 2006.	Goulburn Valley Water has promoted the Government’s Water Smart Gardens and Homes rebate scheme on the Authority website and in customer newsletters. Since the introduction of the rebate scheme customers of Goulburn Valley Water have applied for and received the following rebates.																				
	<p>Rebates will be made available to the following not-for-profit organisations that are eligible for the Water and Sewerage Rebate on service charges: sporting clubs, housing and accommodation, preschools and kindergartens and churches.</p> <p>This not-for-profit component of the Water Smart Gardens and Homes Rebate Scheme will commence 1 October 2004. It will provide funding to these not-for-profit organisations on a dollar-for-dollar basis up to a maximum of \$250 per eligible assessment for water efficiency improvements (the maximum rebate of \$250 is available when \$500 or more is spent by the organisation). The rebate will be provided back to the organisation on its water bill as with the domestic rebates.</p>																					
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5.16	The Government will require urban water authorities to plan for new growth areas in the development of their Water Supply – Demand Strategies.	The WSDS being undertaken by the Authority includes consideration of town growth as a fundamental requirement – see page 15.																				

Reference	White Paper Action	Goulburn Valley Water Action
5.18	The Government will require urban water authorities to work with industry towards improved water management outcomes, including opportunities for water conservation, recycling and waste minimisation.	During 2005/2006 a new format trade waste agreement has been developed for the Authority's major trade waste customers and is currently being rolled out across the region. The new agreement places greater emphasis on waste minimisation plans and trade waste performance reporting.
5.30	The Government will require urban water authorities to work with industrial and commercial clients and EPA Victoria to develop cleaner production programs and reduce salt discharge.	EPA Victoria, Goulburn Valley Water and our major industrial customers are continuing to work together to reduce trade waste flows and inputs of salt to wastewater management facilities - see page 21.
5.37	Water authorities will implement leakage reduction programs and use cost effective technology such as water pressure reduction to reduce distribution losses.	Distribution system non-revenue water has reduced from 14.0% to less than 10% since 2002. The program is continuing, with further savings expected.

Water Consumption & Drought Response Reporting

Water Consumption

Water consumption was slightly less in 2005/2006 compared to the previous year, which is encouraging considering the region again experienced another hot dry summer.

An increase of 757 megalitres was recorded in residential use during 2005/2006, along with a reduction of 31 megalitres in non-residential use. This reduction was in part due to SPC-Ardmona reducing their consumption in the peak season (December to April) by 204 megalitres.

In 2005/2006 the Authority continued its program to reduce system losses. This program incorporates replacement of older meters, regular calibration of bulk meters, and detailed investigations into areas experiencing high losses. This program is to continue in 2006/2007.

Corporate Water Consumption

The Authority set a target annual consumption of 1,070 kilolitres for Goulburn Valley Water's corporate administration office, located in Shepparton. This figure is based on per person/per annum consumption of 15.7 kilolitres. This figure was derived from actual past consumption.

An excellent result was achieved in 2005/2006 with water consumption being below the target even though there was an increase in staff numbers. Water consumption was 1,057 kilolitres for the office and 14.3 kilolitres per person/per annum, which equates to a reduction of approximately 9%.

This excellent result will be supplemented by additional office based water saving measures to be introduced in 2006/2007.



Rod Kerris & Stuart Harris reviewing the growth at the Seymour Golf Club which uses reclaimed water to irrigate.

Water Restrictions

With below average rainfall and storage levels in Sunday Creek Reservoir continuing to decrease, the Sunday Creek Water Supply System (Broadford, Kilmore, Clonbinane, Wandong-Heathcote Junction and Wallan [transferred to Yarra Valley Water on 16 January 2006]) remained on Stage 1 water restrictions throughout 2005/2006.

A dramatic decline in water storage level in Ritchie Reservoir, combined with an increase in water consumption over the hot dry January and February, resulted in Stage 2 water restrictions being applied at

Mansfield from 1 March 2006. Welcome rainfall in April and a reduced demand allowed the Authority to remove the Stage 2 water restrictions on the 26 April 2006.

Although the dry weather over the summer period reduced water storage levels at Pyalong, the primary reason for the introduction of Stage 2 water restrictions on 17 March 2006 was a break in a water main which resulted in the Pyalong water storage losing about five megalitres. The broken pipe was detected by Authority staff and repaired immediately. The restrictions were lifted on 31 May 2006.

No other towns in Goulburn Valley Water's region experienced water restrictions during 2005/2006.

Water Consumption and Drought Response Report 2005/2006

Water District	Actual Annual Consumption (ML) and Number of Assessments (No.)							Average Annual Demand	Annual Consumption / Average Annual Demand
	Water Supply Retail Urban Residential		Water Supply Retail Urban Non-Residential		Other	Total Annual Consumption			
District	ML	No.	ML	No.	ML	ML	No.	ML	%
Alexandra, Eildon, Thornton	360	1,873	151	283	13	524	2,156	528	99.2
Barmah	41	152	14	17	12	67	169	54	123.6
Broadford, Clonbinane	344	1,631	100	112	12	456	1,743	455	100.2
Cobram, Yarroweyah	785	2,306	1,924	433	0	2,709	2,739	2,637	102.7
Colbinabbin	13	77	5	15	13	31	92	33	94.0
Corop	6	32	0	4	0	6	36	6	103.4
Dookie	64	135	25	19	0	89	154	86	103.4
Euroa, Strathbogie, Violet Town	571	1,983	180	272	60	811	2,255	779	104.1
Girgarre	26	112	5	17	0	31	129	33	93.0
Katamatite	36	115	5	19	16	57	134	52	109.3
Katandra West	34	100	7	14	0	41	114	43	95.3
Katunga	24	76	9	16	9	41	92	40	103.3
Kilmore, Wandong/ Heathcote Junction, Wallan	745	5,503	142	361	156	1,043	5,864	1,081	96.5
Kyabram	842	2,648	294	401	48	1,184	3,049	1,175	100.8
Longwood	38	113	20	14	25	84	127	80	104.5
Mansfield, Bonnie Doon, Upper Delatite	447	2,317	171	309	51	669	2,626	659	101.4
Marysville, Buxton	105	664	72	103	126	302	767	286	105.8

Water District	Actual Annual Consumption (ML) and Number of Assessments (No.)							Average Annual Demand	Annual Consumption / Average Annual Demand
	Water Supply Retail Urban Residential		Water Supply Retail Urban Non-Residential		Other	Total Annual Consumption			
District	ML	No.	ML	No.	ML	ML	No.	ML	%
Merrigum	73	200	15	30	10	97	230	98	98.7
Mooroopna	1,065	3,221	1,138	230	80	2,283	3,451	2,245	101.7
Murchison	126	383	41	56	3	170	439	174	97.7
Nagambie, Baxters Road, Kirwans Bridge	219	780	269	118	31	520	898	487	106.7
Nathalia	227	711	93	119	63	384	830	337	113.7
Numurkah, Wunghnu	642	1,987	168	308	106	916	2,295	886	103.4
Picola	16	64	1	9	4	21	73	19	108.8
Pyalong	27	147	3	18	15	45	165	37	123.9
Rushworth	187	555	68	91	39	294	646	298	98.8
Seymour, Avenel, Mangalore, Tallarook	1,004	3,554	505	498	102	1,611	4,052	1,656	97.3
Shepparton, Congupna, Tallygaroopna	5,470	14,780	3,695	2,160	776	9,941	16,940	10,044	99.0
Stanhope	61	234	12	63	15	88	297	92	95.4
Strathmerton	69	231	68	30	0	136	261	132	103.5
Tatura	538	1,641	1,371	206	41	1,950	1,847	1,967	99.2
Tongala	171	539	573	88	33	777	627	932	83.4
Toolamba	51	107	3	5	2	56	112	60	93.3
Woods Point	10	61	1	8	3	14	69	15	91.0
Yea, Molesworth	158	627	62	127	1	221	754	224	98.4
Total	14,594	49,659	11,208	6,573	1,865	27,667	56,232	27,731	100.0

Sunday Creek Reservoir



Bulk Water Entitlements

Bulk Water Entitlements 2005/2006				
Supply System	SOURCE	Bulk Entitlement	Raw Water Volume Taken	Temporary Transfers
		ML	ML	ML
Alexandra	Goulburn River	916	460	-450
Barmah	Murray River	82	64	0
Bonnie Doon	Lake Eildon	112	92	-10
Broadford/Kilmore/Wallan/ Waterford Park/Clonbinane/ Wandong/Heathcote Junction	Sunday Creek	2,238	1,702	0
Buxton	Steavenson River	110	0	0
Cobram	Murray River	2,975	3,057	0
Colbinabbin	Channel	89	33	-50
Corop	Channel	44	12	-30
Dookie	Channel	160	106	-40
Eildon	Lake Eildon	480	155	-310
Euroa	Seven Creeks and Mt Hut Creek	1,990	847	0
Girgarre	Channel	100	46	-35
Katamatite	Channel	84	63	0
Katandra West	Channel	64	42	0
Kyabram/Merrigum	Channel	2,000	1,407	-539
Longwood	Nine Mile Creek	120	75	0
Mansfield	Delatite River	1,300	685	0
Marysville	Steavenson River	462	411	0
Mooroopna	Goulburn River	500	162	0
Murchison	Goulburn River	350	205	-100
Nagambie	Goulburn River	825	552	-240
Nathalia	Broken Creek	652	466	0
Numurkah/Wunghnu	Broken Creek	1,206	1,119	0
Picola	Channel	44	25	0
Pyalong	Mollisons Creek	75	58	0
Rushworth	Waranga Basin	530	371	-100
Seymour/Avenel/Tallarook	Goulburn River	5,340	1,693	-2,915
Shepparton/Mooroopna/ Tallygaroopna/Toolamba	Goulburn River	18,320	12,892	-4,004
Stanhope	Channel	200	93	-80
Tatura	Channel	2,600	2,165	-500
Thornton	Rubicon River	120	49	0
Tongala	Channel	1,404	1,009	-200
Upper Delatite	Delatite River	235	94	0
Violet Town	Honeysuckle Creek	270	0	0
Woods Point	Brewery Creek	21	16	0
Yea	Yea River	438	237	0
Total		46,456	30,463	9,603

Notes to the Bulk Entitlements (BE) Table:

1. During 2005/2006 GVW permanently transferred 174ML of irrigation water right from a GVW owned farm to the Cobram BE, increasing that entitlement from 2,801ML to 2,975ML.
Also, during 2005/2006 GVW sought Ministerial approval to further increase the Cobram BE by 550ML. Amendments were sought to decrease the Shepparton BE by 350ML and the Mooroopna BE by 200ML to provide for the Cobram increase. It is expected that these amendments will be finalised and reported in 2006/2007.
2. GVW complied with its River Murray Bulk Entitlement, i.e. managed its usage (4,794ML) within the total sum of entitlements at Barmah, Cobram, Katamatite, Nathalia, Numurkah and Picola (5,043ML).
3. GVW utilises some BE to facilitate re-use of reclaimed water by neighbouring farmers (third-party re-users). This water is used to shandy reclaimed water to ensure that irrigation practices are sustainable. During 2005/2006 GVW transferred 500ML from the Tatura BE and 595ML from the Seymour BE to third party reusers.
4. During 2005/2006 GVW temporarily transferred 8,508ML to irrigators via the water market.
5. GVW temporarily transferred 20ML of BE from Seymour to Bonnie Doon during the year.
6. GVW undertakes tertiary treatment of reclaimed water at the Shepparton, Alexandra and Eildon wastewater management facilities. This water is treated to a high standard and in 2005/2006 2,284ML were returned to the Goulburn River. GVW considers this water delivers specific environmental flow benefits and should be recognised and accounted for as a beneficial allocation.
7. GVW had no new offtake points for any of its BE's in 2005/2006.
8. GVW has meters on all of its offtake points and is in the process of reviewing metering programs for all BE's.
9. On 30 June 2006 Goulburn-Murray Water (G-MW) advised GVW of a meter reading for the Tatura BE indicating GVW had overused this entitlement by 64.7ML. A subsequent investigation revealed a discrepancy of 74.9ML between a GVW meter reading on 1 July 2005 and a subsequent meter reading by G-MW on 5 September 2005. Industrial action at GVW including work bans on meter reading in the second half of 2005 exacerbated the confusion created by this discrepancy. Investigations have not been able to fully explain the discrepancy; however the cause is likely to be related to problems associated with commissioning a second raw water storage, pump and meter setup at Tatura in April/May of 2005. Discussions with G-MW have been productive and an improved metering program is being implemented to facilitate more regular meter readings and the opportunity for timely reconciliation of readings between the Authorities. In addition, G-MW is developing an aggregated accounting system for holders of multiple entitlements which will provide flexibility of use within a total bulk entitlement portfolio. The total of all GVW's bulk entitlements in the pool above Goulburn Weir recorded a surplus of 1,130 ML.
10. Under clause 14.1(e) of the Broadford, Kilmore & Wallan Bulk Entitlement the water level and volume of Sunday Creek Reservoir on 30 June 2006 was 16.0 m and held 616 ML which compares to 16.8 m and 714 ML held on 30 June 2005.
11. Under clause 13.1(d) of the Mansfield Bulk Entitlement GVW has taken 1,370ML over the last two financial years.



Ben Hardman, MP, Member for Seymour, The Hon. John Thwaites, Minister for Water, Laurie Gleeson, CEO GVW, Tony Kelly, MD, YVW

Transfer of Wallan and Hidden Valley to Yarra Valley Water

On Monday 16 January 2006 the responsibility for the operation and management of water and sewerage services to Wallan and Hidden Valley officially transferred from Goulburn Valley Water to Yarra Valley Water.

The transfer was the principal recommendation made by the High Level Task Force appointed by the Government in 2004 and brought to a conclusion the work that both Goulburn Valley Water and Yarra Valley Water had undertaken to make the initiative successful. It also coincided with completion of both the Melbourne to Wallan water supply pipeline and the Wallan reuse facility projects which represent key infrastructure for the continued growth of Wallan.

Sourcing of all future water supply for Wallan from the Melbourne system has benefits for Broadford, Kilmore, Clonbinane and Wandong-Heathcote Junction as more water will be available for these towns from Sunday Creek Reservoir. The change in supply arrangements will reduce demand on the reservoir and relieve the supply pressure on these towns.

The transfer was launched at Wallan by the Minister for Water, the Hon. John Thwaites on 12 January 2006.

Water Supply Demand Strategy

Goulburn Valley Water is currently preparing a Water Supply Demand Strategy (WSDS) as an initiative of the Victorian Government's White Paper, *Our Water, Our Future*. The development of Goulburn Valley Water's WSDS is currently underway and utilises a comprehensive integrated approach to using water wisely. The WSDS has a 50 year horizon to meet the long term needs of our customers.

Development of the WSDS utilises a 'total water cycle' approach and will include a mixture of demand management measures and supply options to ensure an appropriate balance between urban water supply and demand.

To guide the development of the WSDS, Goulburn Valley Water has established a steering committee representing a cross section of Goulburn Valley Water's customer base. Members of the steering committee include representatives from the community, local government and industry.

The development of Goulburn Valley Water's WSDS has progressed well in 2005/2006 with the completion of a draft WSDS anticipated prior to the end of 2006.

Water Quality

Goulburn Valley Water achieved a very high level of performance against the requirements of the *Safe Drinking Water Act* during the year.

All drinking water systems complied fully with the regulated standards for bacteria, turbidity and chloroacetic acid (a disinfection byproduct). A small number of systems experienced non-compliance against other disinfection byproducts, dichloroacetic acid, trichloroacetic acid, trihalomethanes, and aluminium standards. In most cases, the Authority has formalised undertakings with the Department of Human Services to provide short or medium term improvements to these systems.

The Authority has actively addressed treatment and process control issues that have been identified and considerable improvement has been achieved throughout the year. Full details of Goulburn Valley Water's water quality performance will be made available in the annual water quality report to be produced later in 2006.

Cobram Water Treatment Plant Upgrade

The \$6 million upgrade of the Cobram water treatment plant, utilising the DAFF (Dissolved Air Flotation & Filtration) treatment process, was commissioned in November 2005, producing potable water for consumers in Cobram, Strathmerton and Yarroweyah. The completed works include a 4.8 megalitre clear water storage tank, a fully operational treatment plant capable of producing 7.5 megalitres per day and civil works for a second stage treatment plant capable of producing an additional 7.5 megalitres per day when required by growth.

Cobram-Strathmerton Pipeline

The Cobram-Strathmerton Pipeline project was devised and included in the Authority's infrastructure program to supply potable water to the township of Strathmerton and the nearby Kraft Foods complex from the Cobram water treatment plant.

At the time, Strathmerton and Kraft Foods sourced supply from ground water contained in the Katunga Deep Lead Aquifer and the new supply was seen as being more reliable in both quantity and quality, as well as preserving the ground water source for other users.

Construction of the project, which comprised an 18.3 kilometre pipeline, a booster pumping station at the Cobram water treatment plant, a one megalitre storage tank and high-lift pumping facility at Strathmerton, commenced in February 2004. The pipeline and storage tank were completed in November 2004 and the booster pumping station and high-lift pumping facility were completed in October 2005, which coincided with completion of the Cobram water treatment plant upgrade.

The route of the pipeline, which follows the Murray Valley Highway, passes the Township of Yarroweyah. A reticulated supply system taking water from the pipeline was installed throughout the township during 2004/2005, with supply being made available to consumers in March 2005. Supply is also available to individual industrial and domestic consumers along the pipeline.

The final total cost of the project was \$3.4 million, which has been funded primarily by the Authority, with contributions from Kraft Foods and State and Federal Governments.

Alexandra Water Treatment Plant

In June 2006, the Authority awarded a \$2.6 million contract to Water Treatment Australia Pty Ltd for the construction of a new 6.7 megalitre per day water treatment plant at Alexandra. The plant will replace the existing 1.5 megalitre per day plant which has insufficient capacity to treat the current maximum daily demand for Alexandra. The new plant has been sized to have sufficient capacity to function as a regional treatment plant and will accommodate current and

future potable water demands from Alexandra, Eildon, Thornton and Rubicon Village. The contract is a Design & Construct contract utilising the DAFF (Dissolved Air Flotation & Filtration) treatment process and is due to be commissioned in November 2007.

Water Supply Master Plans

Goulburn Valley Water has developed water network master plans for many towns across the region, focusing on the larger towns and those experiencing strong growth. These master plans are developed for a 20 year period and establish the water network infrastructure capacity and requirements over that period based on various growth scenarios.

Kilmore-Wandong-Heathcote Junction Water Network Master Plan

The Kilmore-Wandong-Heathcote Junction Water Network Master Plan is a 20 year program of water infrastructure improvements. For Kilmore, the master plan was based on an average predicted growth rate of 4.2%, or over 2,100 new connections by 2025, which demonstrates the strong residential development being experienced in the town. For Wandong-Heathcote Junction, the master plan was based on an average predicted growth rate of 2.25%, or 331 new connections by 2025.

The plan identifies the need to spend \$5.8 million between 2005 and 2025 on infrastructure improvements. One of the major improvements highlighted in the plan is the construction of a 16 megalitre clear water storage to replace two existing open earthen storages in Kilmore. These works will be completed by June 2008 at a cost of \$4 million.

Broadford Water Network Master Plan

The Broadford Water Network Master Plan is a 20 year program of infrastructure improvements. The master plan was based on an average predicted growth rate of 1.2% which equates to over 340 new connections by 2025. The plan identifies the need to spend over \$1.2 million between 2005 and 2025 on infrastructure improvements.



Victorian River Health Strategy

Goulburn Valley Water is committed to the Victorian River Health Strategy, a State Government initiative that provides a sustainable framework for protecting and restoring rivers, their catchments and the regional economies that depend on them.

The Authority has undertaken many initiatives and invested substantial resources on reducing its nutrient load to waterways. Since the mid 1990's, a continuing initiative that complements current Government requirements has been to increase the beneficial reuse of reclaimed water. Goulburn Valley Water currently utilises most reclaimed water by irrigating Authority and third party owned land including farmland, tree plantations and golf courses.

During this financial year seasonal conditions required 2,545 megalitres of reclaimed water to be returned to the Goulburn River compared to 2,336 megalitres in 2004/2005. This tertiary treated reclaimed water is of high quality and complements river flows.



Regional Catchment Strategy

Goulburn Valley Water recognises the importance of regional catchment health and has embraced an integrated stakeholder approach to catchment management.

Goulburn Valley Water's link with the Goulburn Broken Catchment Management Authority, Local Government and other catchment stakeholders is strong. Goulburn Valley Water contributes to the Regional Catchment Strategy by providing input to the committees responsible to deliver the strategy and undertaking various actions such as community education programs and water quality monitoring.

Victorian Biodiversity Strategy

Goulburn Valley Water's Biodiversity Strategy complies with the intent of the Victorian Biodiversity Strategy. It ensures biodiversity values are considered in the Authority's decision making processes and routine operations. A biodiversity budget is allocated annually, which provides resources to achieve designated objectives and targets that will enhance biodiversity values at our sites.

Progress on the Authority's biodiversity objectives and targets set for 2005/2006 is as follows:

Objective	Target	Progress Status
Increase the number of Land for Wildlife Sites at GVW's wastewater management facilities	Total of 6 sites by June 2006	5 Land for Wildlife sites have been registered across GVW's region. An additional registration at Broadford is to be approved in early 2006/2007 and will achieve the targeted number.
Increase the number of indigenous plantings at GVW's wastewater management facilities	10,000 trees by July 2006	This target was amended during the year due to the extended dry period and a total of 8,000 trees were planted this year.
Increase the area fenced off for biodiversity and conservation purposes	10 hectares by July 2006	7 hectares has been fenced off at the Land for Wildlife site at Alexandra. Once the Land for Wildlife area in Broadford is approved early in 2006/2007, this target will be achieved.
Monitor effectiveness of the Land for Wildlife sites for improving biodiversity	Conduct bird surveys at GVW's Land for Wildlife sites, with assistance from the Bird Observers Club.	Two bird surveys have been undertaken at the Shepparton Land for Wildlife site during 2005/2006. A bird survey is to occur at the Alexandra Land for Wildlife site in 2006/2007.

Land for Wildlife at Alexandra Wastewater Management Facility

Seven hectares at Goulburn Valley Water's wastewater management facility at Alexandra were declared a *Land for Wildlife* area in February 2006.

The area that has been designated as *Land for Wildlife* is a terrace area in the centre of the wastewater management facility and a permanent billabong on the Goulburn River floodplain at the western end of the site. This area is predominately covered with River Red Gums and riparian vegetation on the river banks and the bank of the billabong is covered with a mix of exotic and native plant species.

A flora and fauna survey conducted at the Alexandra wastewater management facility identified 45 plant species of which 24 were natives, including Silver Wattle and Tree Violet. 33 species of birds were identified in the survey, 17 of which are water birds associated with the billabong and lagoons on site.

The survey also identified a number of species which are considered threatened, vulnerable or listed on the Flora and Fauna Guarantee Act. These included the Hardhead Duck, Royal Spoonbill and the Australasian Shoveler. The other exciting identification was a single Intermediate Egret. This bird species is regarded as critically endangered in Victoria and is not recorded for this locality in the Atlas of Victorian Wildlife, which makes it an unusual sighting.

Environmental Approach

Goulburn Valley Water's commitment to reduce environmental impact requires the annual formulation of strategic environmental objectives and targets. The objectives and targets are developed via an integrated risk management approach that considers all aspects of the Authority's operations.

The objectives and targets adopted for 2005/2006 are as follows:

- 1) Reduce Greenhouse Gas Emissions from GVW's High Rate Anaerobic Lagoons (HRAL's)
- 2) Compliance with all wastewater management facility EPA discharge licences
- 3) Promote beneficial reuse of biosolids
- 4) Improve sewerage system operations
- 5) Maximise the beneficial reuse of reclaimed water to land
- 6) Improve sewerage system odour management
- 7) Maximise efficient energy use
- 8) Improve staff environmental awareness
- 9) Reduce office based paper consumption and encourage recycling
- 10) Improve biodiversity management

Progress on achieving these objective and targets are monitored throughout the year and reported to the Board on a quarterly basis. Full details are provided in the Environmental Annual Report.

Environmental Management System

In November 2005 Goulburn Valley Water's Environmental Management System (EMS) was audited to the revised ISO 14001:2004 Environmental Management Systems standard. All existing certifications to the former ISO 14001:1996 had until May 2006 to conform to the new standard. The Authority's EMS was deemed to meet all the requirements of the new standard and is now fully accredited.

The scope of the EMS currently focuses on the Authority's wastewater management facilities. In line with the Authority's culture of continuous improvement, the scope of the EMS will be extended in 2006/2007 to focus on the Authority's Operational Centres and Administration Centre in Shepparton. This will also serve to further integrate the Authority's Environment Policy into business operations.

Greenhouse Gas Emission

Goulburn Valley Water monitors and manages its greenhouse gas emissions under the requirements of the Victorian Greenhouse Strategy set out in the State Environmental Protection Policy (Air Quality Management).

In 2005/2006 Goulburn Valley Water was part of a Victorian water industry working group dedicated to the development of a Greenhouse Emissions Reduction discussion paper for the Victorian water industry. The industry recommendations identified in the Discussion Paper are to be implemented during 2006/2007.

Goulburn Valley Water continues to monitor Shepparton, Tatura, Mooroopna and Broadford wastewater management facilities identified as high energy use sites. While an energy increase of 3% was observed across these four wastewater management facilities in 2005/2006 this was mainly due to a 500 megalitre increase in flows to the Shepparton wastewater management facility during the year. Even with this increase, the Authority's efficient operations during the year reduced greenhouse gas emissions by a further 11,000 tonnes CO₂-e, from 54,000 tonnes CO₂-e in 2004/2005 to 43,000 tonnes CO₂-e in 2005/2006.

From an Authority wide perspective, total greenhouse gas emissions have reduced from around 100,000 tonnes CO₂-e in 2001/2002 to 43,000 tonnes CO₂-e in 2005/2006, or 57%, over the last 4 years. This is primarily due to the introduction of covered High Rate Anaerobic Lagoon (HRAL) facilities at the Tatura, Shepparton and Mooroopna wastewater management facilities and general optimisation of energy usage. This reduction will be further complemented in 2006/2007 by the commencement of 'green energy' generation at the Tatura HRAL site.

Wastewater Management

Goulburn Valley Water operates 26 wastewater management facilities across the region. The facilities vary, but predominantly utilise lagoon based treatment processes capable of treating reclaimed water to a secondary standard (EPA Class C), suitable for irrigation reuse. Three of the facilities treat reclaimed water to a tertiary standard (EPA Class A) enabling controlled discharge to waterways at designated times of the year.

With the prevailing climatic conditions, reclaimed water continues to be a valuable resource for the Authority and the community. Goulburn Valley Water is continuously looking for new opportunities to beneficially reuse reclaimed water from its wastewater management facilities across the region.

Reuse of Reclaimed Water

Goulburn Valley Water currently coordinates 35 reuse sites across the region. The reclaimed water is predominately used for land based irrigation, including Authority and third party owned pasture and three golf courses. Approximately 5% of reclaimed water is reused on tree plantations.

In 2005/2006 the Authority reused approximately 7,300 megalitres of reclaimed water for irrigation. This equates to approximately 73% of all the reclaimed water produced at Goulburn Valley Water's 26 wastewater management facilities. The reclaimed water reuse target for 2005/2006 was 75%. However, this was not achieved primarily due to climatic conditions requiring a delayed start to the irrigation season and the need for an emergency discharge of reclaimed water from the Tatura wastewater management facility.

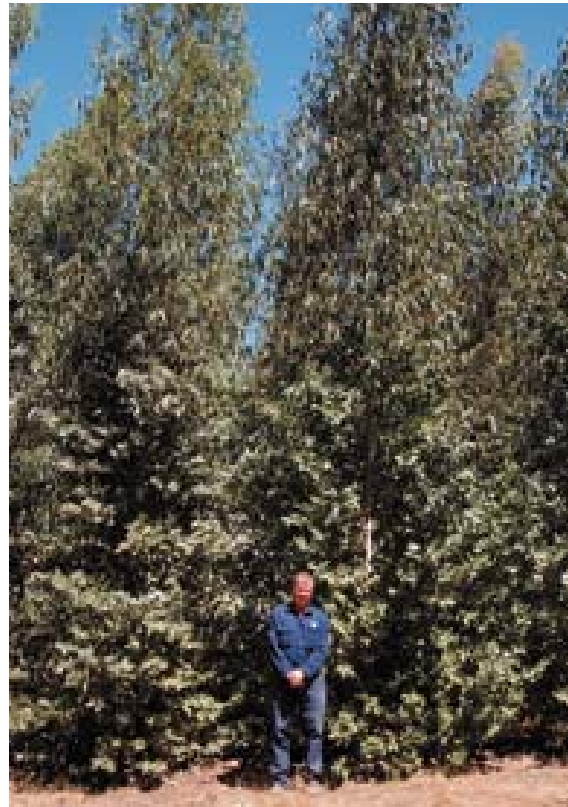
A 413 megalitre emergency discharge at the Tatura wastewater management facility was needed due to higher than usual sewerage system infiltration and local industry discharge volumes. This is being addressed with infiltration rectification works and the provision of an additional reclaimed water storage included in the Authority's 2006/2007 infrastructure program.

Goulburn Valley Water has planned various initiatives across the region, including discussions with prospective third party customers, to increase reuse opportunities in the future. The Authority is also planning to develop additional reclaimed water reuse facilities on Authority owned land at Tatura, Mansfield, Cobram and Marysville.

Tatura Wastewater Management Facility

The township of Tatura is continuing to grow, including industry. The discharge of wastewater to the Tatura wastewater management facility has increased to the point where the existing winter water storage lagoons and irrigation reuse system are at capacity.

A comprehensive review of the Tatura wastewater management facility was completed and presented



Blue gum plantation at Seymour

to the Board in August 2005 Meeting. The review recommended the construction of an off site winter water storage lagoon in two stages with Stage 1 providing 210 megalitres of storage volume and Stage 2 160 megalitres of storage volume. Stage 1 is proceeding, with Stage 2 scheduled for 2013/2014. The acquisition of a new site forms part of this development. The remainder of the site is to be developed for irrigation reuse.

A Consultant was engaged in January 2006 to undertake the detailed design and construction management of the Stage 1 winter water storage lagoon and associated works. Construction is scheduled to commence in 2006/2007. The Stage 1 works are estimated to cost \$5.2 million.

Reuse of Biosolids

Goulburn Valley Water is continually looking for sustainable reuse opportunities for the nutrient rich biosolids that are accumulated from the wastewater treatment process each year. This year a total of approximately 3,000 dry tonnes of biosolids were produced at the Authority's 26 wastewater management facilities. As part of the Authority's biosolids strategy approximately 6,400 dry tonnes of biosolids from the Cobram wastewater management facility was reused at the Authority's Cobram facility as a soil conditioner. This application was undertaken as part of the farm redevelopment plans. In 2005/2006 removal of biosolids from treatment lagoons occurred at Shepparton, Cobram, Nathalia and Tongala. These biosolids are being dried, stockpiled and used as a soil conditioner or for landfill capping applications on a continual basis.



Wastewater Spills

The management of wastewater spills is a high priority for Goulburn Valley Water and a focus of the Authority's environmental systems. The number of spills are monitored and reported each year to establish the basis for continuous improvement.

This is the third year that a two tier system of reporting spills has been in place. The reporting includes spills of treated reuse water as well as untreated wastewater. In 2004/2005 the Priority 1 spills were all untreated wastewater whereas this year three of the Priority 1 spills are from other sources, including two reclaimed water spills with significantly less environmental impact. The number of Priority 2 spills has also significantly reduced.

Type	2003/2004	2004/2005	2005/2006
Priority 2	62	62	44
Priority 1	0	6	7
Total	62	68	51

Details of the seven Priority 1 spills are as follows :-

- Shepparton wastewater management facility** – Ferric Sulphate sludge from the Shepparton tertiary treatment plant spilt into a stormwater drain via a broken pipe. The spill discharged to a nearby State Forest, where the sludge pooled in an earthen depression. Minimal environmental impact resulted and the forest was quickly reinstated to its natural state.
- Shepparton, Gilchrist Street** – A spill to the external environment occurred when a pipe failed downstream of a pump station. The spill was located in a vacant allotment and flowed to a nearby gutter and stormwater pit. The area was immediately bunded and trenches dug to contain the spill. A suction truck was used to clean up the spill and reinstate the area. No significant environmental impact resulted.
- Seymour, Oak Street** – A major storm event at Seymour yielded approximately 62mm of rain in a 9 hour period and considerable localised flooding occurred. As a result, residential properties were flooded and stormwater infiltrated the Authority's sewerage system causing approximately 200 kilolitres of diluted wastewater to enter Whiteheads Creek. The environmental impact was negligible considering the high flow in Whiteheads Creek at the time. Ongoing monitoring confirmed that no adverse environmental impact occurred as a result of the spill.
- Shepparton, Ford Road** – A section of the Campbell's wastewater rising main failed, causing approximately 500 kilolitres of trade waste to spill into Ford Road and an adjacent roadside drain. As a result of this failure, replacement of this section of main has been brought forward in the capital works program. No adverse environmental impact occurred due to the spill.
- Mooroopna Lime Silo** – A 50mm diameter hose connecting the lime slurry tank to the dosing point disconnected, causing trade waste to spill to an adjacent forest area located on Goulburn Valley Water property. EPA attended the spill and issued a Pollution Abatement Notice directing the Authority to undertake various works to prevent further spills at the site. The environmental impact was minimal and the works successfully completed in May 2006.
- Kilmore reuse facility** – A backwash return pipe failed on Authority land, discharging some reclaimed water into a nearby creek. An existing earthen bund contained a large proportion of the spill. However, the bund overtopped resulting in discharge to the creek. EPA attended the site and considered the Authority had acted effectively in minimising the spill. The Authority has further implemented a number of initiatives to prevent the spill from reoccurring. No adverse environmental impact occurred due to the spill.
- Tatura wastewater management facility** – An irrigation system managed by a reuse customer caused a reclaimed water spill when an irrigation bay overflowed into an external drainage system. Approximately 5 megalitres of reclaimed water discharged from the system. The spill was contained in table drains and pumped back to the Tatura wastewater management facility. No adverse environmental impacts occurred from the spill.



Len Tricarico Campbells Soup
and Brady Schmidt GVV

Working to Reduce Salt

Goulburn Valley Water has set a corporate goal to “work with major industries to implement waste minimisation plans with the aim of reducing salt discharges by 25% by July 2008”. The starting point for this program was the 2003/2004 fiscal year.

A key salt and a major driver of salt levels in trade waste is sodium. Sodium is significant due to its potential negative impact on soils, in areas of land based reuse and its wide use amongst industry in the form of caustic based cleaning chemicals. Sodium is also a charging parameter under the Authority’s load based trade waste charging system. As a result of its importance, measures of sodium loads are to be used to track the Authority’s progress in achieving a 25% reduction in salt discharges from major industry.

Working in partnership with business and the EPA, Goulburn Valley Water continues to roll out the water and salt audit program to major customers across the region. Audits are currently being undertaken with Campbell’s Soups in Shepparton and Greenham’s Abattoirs in Tongala, with several other major customers being audited in 2006/2007. Audits have been completed at SPC-Ardmona and Tatura Milk Industries and these are now beginning to yield results, with significant reductions in water use and sodium discharge at both SPC-Ardmona’s sites in Shepparton and Mooroopna this fruit season. Tatura Milk Industries has also reduced organic and sodium loads and continues to work on reductions in water use. Significant reductions in the sodium levels discharged by major industry across the region have been achieved this year. The biggest contributions to

this have been from businesses in Tatura, Shepparton and Tongala with sodium reductions of 35% 25% and 28% respectively. The participating industries are to be complimented on what has been achieved to date, with continuing reductions being anticipated.

Research & Development

Goulburn Valley Water’s philosophy to research & development (R&D) is to support industry-wide research via the CRC for Water Quality and Treatment and the Water Services Association of Australia (WSAA) which carry out a significant amount of research focused on the needs of water utilities. This approach provides the best return and greatest leverage on investment. This industry-wide approach is supplemented by specific R&D for issues primarily related to the Authority. These initiatives include irrigation of tree plantations with reclaimed water, biosolids research, reducing salt levels in dairy waste and high rate anaerobic lagoon technology.



Tree plantation Seymour



Irrigation of Tree Plantations with Reclaimed Water

Goulburn Valley Water has supported research on impacts of irrigation with reclaimed water on native tree plantations at Shepparton wastewater management facility for a decade. This work was completed in 2005/2006 and has provided valuable data on the impacts on plantations. Goulburn Valley Water will retain the trees at Shepparton due to the aesthetic benefits they provide for the surrounding community.

Goulburn Valley Water is in partnership with Green Triangle Plantation Forest Company of Australia Pty Ltd. (GPFL). This partnership is providing GPFL with approximately 140 hectares of commercially grown trees using 336 megalitres of reclaimed water from the Authority's Broadford and Seymour wastewater management facilities.

When comparing tree growth between non-irrigated and irrigated plantations, the trees irrigated with reclaimed water were in some instances twice the size of trees that were not irrigated. In addition to the greater than expected growth, the plantations using reclaimed water were planted closer together, which increased the density of the plantation by as much as 50%. The Broadford and Seymour sites are expected to be harvested in the next three to five years.

National Biosolids Research Program

This nationwide four year program will be essentially completed in 2006/2007. It is providing valuable information on the impacts of metals in biosolids on soils and produce, in addition to impacts on productivity at 17 sites throughout Australia. A site was established

at Dookie for trials on biosolids from Goulburn Valley Water and North East Water. In addition a larger scale trial was undertaken on the impacts on productivity of wheat. The trials are likely to result in review of guidelines for application of biosolids to land throughout Australia to reflect the different characteristics of soils. The original program has been extended to include the impact of pathogens.

Goulburn Valley Water staff led the establishment of the program in Victoria, for which all water authorities, DSE and EPA have provided support.

Australasian Biosolids Partnership

Public perceptions with biosolids management have proven to be more significant than technical issues throughout the world. The Victorian water industry recognised this and a joint water industry/government regulatory working group developed a framework for public engagement in 2004. A national steering committee has developed the Victorian framework into a fully implementable program, primarily to assist the Australian and New Zealand water industries with public engagement but also to provide valuable information to the wider community. The program, the Australasian Biosolids Partnership, is expected to be launched in late 2006 under the auspices of the Australian Water Association. A key component is a website, biosolids.com.au, that will provide a readily accessible site for a wealth of information on biosolids management throughout the world.

The Victorian working group and the national steering committee have been chaired by Goulburn Valley Water's Director-Technical Services, Allen Gale.

Closing the Loop Project

Goulburn Valley Water is working with the Victorian dairy processing industry to assess means of reducing salt levels in dairy processing wastewater, along with possible means of value adding to salt residues from the processing. Goulburn Valley Water works in partnership with several major dairy processors in the management of their trade waste and thus any improvements that the processors make impacts on both parties. The project, which has received substantial support from the Gardiner Foundation, has been most important for identifying long term solutions for reduction of salt in trade waste, and subsequent reclaimed water for land-based reuse. One key outcome has been proving that the concentration of caustic soda required for Cleaning in Place (CIP) could be reduced which provides substantial cost savings in addition to improving the quality of the trade waste discharged for treatment and land application. This is of benefit to Goulburn Valley Water as well as the dairy processing companies.

As part of the project, Goulburn Valley Water provided a 15 hectares site at the Tatura wastewater management facility for trials on the impacts of high salinity water on pasture production. The trials finished in 2006 and although the results were promising, long term addition of high saline water to pasture was not considered to be sustainable and the primary focus continues to be on cleaner production and waste minimisation rather than end of pipe solutions. The Closing the Loop project will be completed in 2006/2007.



High Rate Anaerobic Process Evaluation

Goulburn Valley Water is undertaking pilot trials of an Upflow Anaerobic Suspended Bed (UASB) process for treatment of high strength food processing wastes at Mooroopna. The findings from these four month trials will be used to assess long-term upgrades of the Mooroopna wastewater management facility.

