In association with

2008 REVIEW OF WATER PRICES - ASSESSMENT OF EXPENDITURE FORECASTS FOR GOULBURN-MURRAY WATER

Final Report

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FINAL REPORT

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EXECUTIVE SUMMARY

The capital and operating expenditure forecasts for the 2008/13 period that have been submitted by Goulburn-Murray Water (G-MW) to the ESC in its Water Plan and in the ESC templates have been largely based on assumptions made prior to the announcement of the Food Bowl Modernisation Project.

In addition to the Food Bowl Modernisation Projects, other recently announced water savings projects, including the Shepparton Modernisation Project and the Total Channel Control – Central Goulburn 1234 Stage 3 project have not been included in G-MW's operating forecasts for 2008/13.

However, GM-W has included some adjustment to its original Advanced Maintenance Program (AMP) forecasts as a result of the announcement of the Food Bowl Modernisation Project. GM-W has looked to keep the AMP spend to a minimum until the full implications of the Modernisation Projects are known, which has reduced the proposed expenditure on G-MW's AMP by almost 40% from the original forecasts. In addition, it has made some preliminary changes in its operating forecasts to take account of the automation of the irrigation systems, modernisation and water savings, changes to Murray-Darling Basin Commission contributions, the impact on diversion metering and potential changes to other expected operating expenditure, such as electricity charges.

GM-W expects its capital program to also be affected by the Food Bowl Modernisation Project, but as with the expected impacts on the operating expenditure forecasts, a full review and revision will not be possible until the scope, timing and investment priorities for the Modernisation Project are known.

As a result of these Water Saving Modernisation Projects, GM-W plans to resubmit its Water Plan to allow its revenue requirements and revised pricing proposals for 2008/13 to be reassessed by the Essential Services Commission (ESC) when the full details of the projects are known. GM-W expects to have this information in early to mid-2008. Therefore, G-MW's current 2008/13 Water Plan represents an intermediate submission to the ESC to allow for a one-year pricing path for 2008/09 to be assessed based on preliminary operating and capital expenditure forecasts, with more robust forecasts to be provided in the re-submitted Water Plan.

Based on our discussions with G-MW and our review of the data that was made available to us, our final recommendations for G-MW's operating and capital expenditure forecasts for the second regulatory period are outlined in Table 1-1 and Table 1-2 respectively.

Table 1-1 Recommendations for Goulburn-Murray Water's Operating Expenditure Forecasts

Business	Forecast	Operating Expenditure ($m, 01/01/07)				
		2008/09	2009/10	2010/11	2011/12	2012/13
Goulburn-Murray Water	Final Water Plan	92.19	96.67	83.87	83.12	82.93
	Cardno Revised	90.68	89.93	87.44	83.09	82.90
	Net Change	**-1.51**	**-7.34**	**+3.57**	**-0.03**	**-0.03**

Table 1-2 Recommendations for Goulburn-Murray Water's Capital Expenditure Forecasts

Business	Forecast	Capital Expenditure ($m, 01/01/07)				
		2008/09	2009/10	2010/11	2011/12	2012/13
Goulburn-Murray Water	Final Water Plan	56.75	39.11	33.12	38.06	37.45
	Cardno Revised	45.12	44.38	34.54	36.24	35.75
	Net Change	**-11.63**	**+5.27**	**+1.42**	**-1.82**	**-1.70**

Our conclusions, recommendations and the rationale behind revisions to G-MW's operating and capital expenditure forecasts are summarised below.

Operating Expenditure

G-MW has already reduced its planned maintenance expenditure on irrigation infrastructure under the Advance Maintenance Program (AMP) pending further details of the Food Bowl Modernisation Project, therefore no further changes are recommended at this stage. It will, however, be necessary to review maintenance expenditure once the full details of the modernisation projects are known.

Similarly, the scope of rationalisation and reconfiguration projects is likely to change once details of the Food Bowl Modernisation Project and other planned modernisation projects are known. Therefore, we have made a preliminary recommendation that the forecast operating expenditure for decommissioning of assets and compensation to customers associated with rationalisation be reduced by 20% in 2008/09 and by 50% in 2009/10 pending further details of the proposed projects.

Given the delays to date and the fact that further changes are likely to the scope and timing of the Lake Mokoan – Return to Wetlands project, we recommend that the operating expenditure and costs of decommissioning redundant assets be spread across 2 years.

Capital Expenditure

Goulburn-Murray Water has stated that it intends to prepare a revised capital expenditure forecast and to reissue its Water Plan once further details are available for:

- Food Bowl Modernisation Project;
- Other Modernisation / Water Savings projects (such as Shepparton Modernisation and TCC-CG 1234 Stage 3); and
- Lake Mokoan – Return to Wetlands project.

It is recommended that a further review of the revised capital expenditure forecast is undertaken once this revised documentation is available. It is also recommended that a further review of the Dam Safety Upgrade Program is undertaken at the same time to verify the likely timing of proposed projects.

Based on historical actual expenditure, we believe that the forecast expenditure in the current G-MW Water Plan for Drainage works, primarily Community Surface Drains and the Surface Water Management Program, is optimistic. We recommend that the forecast for this category of expenditure be reduced by 20%.

Whilst recognising that the Dam Safety Upgrade Program is based on sound planning and prioritisation principles, it is again noted that historically actual expenditure has been significantly less than budget. We understand and appreciate that the Program comprises a number of distinct individual upgrade projects; however, we recommend that the forecast expenditure for the overall Dam Safety Upgrade Program be more evenly distributed over the five year period of the Water Plan.

Similarly, given the uncertainty surrounding the final scope of the Lake Mokoan – Return to Wetlands Project, we recommend that the forecast capital expenditure for this major project be spread over the first two years of the Water Plan period.

1. INTRODUCTION AND BACKGROUND

On 1 January 2004 the Essential Services Commission (ESC) became the economic regulator for the Victorian water sector. The Commission's role involves regulating the prices and service standards of 20 regulated water businesses supplying water, sewerage and related services to residential, industrial and commercial, and irrigation customers throughout the State.

Each of the regulated water businesses is required to develop and submit a Water Plan to the Commission for its approval. The Plans are required to set out:

- What the water business proposes to achieve over the regulatory period in meeting demands for rural and where relevant urban water and sewerage services, and complying with its obligations;
- How the water business proposes to achieve those outcomes;
- The water business's revenue requirement to deliver those outcomes; and
- The proposed prices, or the manner in which prices will be calculated or otherwise determined, for each of the prescribed services.

Cardno has been engaged by the ESC to undertake an independent review of the expenditure forecasts provided by Goulburn-Murray Water as part of their Water Plan submissions for the five year period commencing 1 July 2008.

The main objectives of the review is to determine whether the operating expenditure (opex) and capital expenditure (capex) forecasts included in Goulburn-Murray Water's Water Plan:

- Reflect efficient expenditure;
- Are consistent with delivering the required service levels, outputs and obligations over the regulatory period; and
- Take into account a planning horizon that extends beyond the regulatory period.

In undertaking the review, Cardno is required to provide advice to the ESC on whether:

- The capital expenditure forecasts are consistent with existing obligations and service standards are reasonable - having regard to trends in historical expenditure, the reasons underpinning any difference in the expected level from those trends and any other relevant factors;
- There is sufficient evidence of, and consistency with, well developed asset management planning and processes that demonstrate that the forecasts for the next regulatory period have been determined in the context of a planning horizon that extends beyond the term of the Water Plan;
- The proposed program of capital expenditure is deliverable over the five year regulatory period – having regard to the required lead time, approvals processes, any resource constraints and the businesses' abilities to deliver previous capital expenditure programs;
- The proposed trend in operating expenditure over the regulatory period consistent with existing obligations and service standards is reasonable – having regard to expected productivity improvements, trends in input prices and the impact of growth on operating expenditure needs and any other relevant factors; and
- The operating and capital expenditure forecasts associated with meeting new obligations and/or meeting higher service levels reflect their likely expenditure requirements – having regard to any benchmarking or other quantitative techniques considered appropriate.

An Issues Report and presentation, which identified the preliminary views on Goulburn-Murray Water's proposed expenditure forecasts and the nature of further work and investigation to be undertaken, was presented to the ESC on 26 November 2007.

The draft report was prepared presenting the preliminary comments and recommendations based on a detailed assessment of the forecasts, including a series of structured interviews at Goulburn-Murray Water, where the assumptions and bases used to derive the forecast expenditures were discussed in depth.

The draft report was made available to Goulburn-Murray Water who provided a written response commenting on the findings and recommendations that have been made. These comments have been noted by ESC and taken on board in the preparation of this Final Report.

2. EXPENDITURE REVIEW METHODOLOGY

Our approach to reviewing Goulburn-Murray Water's expenditure forecasts involved an initial desktop study where the Final Water Plan and expenditure forecasts that had been submitted to the ESC, along with other information that was readily available, were reviewed. This preliminary review and assessment was then followed by a more detailed analysis of the expenditure forecasts, involving a series of structure interviews with Goulburn-Murray Water to discuss how the forecasts had been derived and the assumptions that had been made.

2.1 Initial Review Stage

The initial review and assessment involved:

- A desktop assessment of Goulburn-Murray Water's Water Plan for 2008-13 and the expenditure forecast templates that had been submitted to the ESC;
- An initial review of any other information that was readily available, i.e., recent Annual Reports that were able to be downloaded from the business's website;
- Identifying the key issues in the submission that would need to be reviewed in more detail; and
- Identifying any additional information requirements to assist in the more detailed review.

The outcomes of the initial review phase were used to prepare an Issues Report and presentation, submitted to the ESC on 26 November 2007, which identified the key issues associated with the business's proposed expenditure forecasts. These key issues were discussed in detail with the ESC and used to form the review plan The Issues Report also formed the main focus of the more detailed review stage.

2.2 Detailed Review Stage

The detailed review stage involved more in depth analysis of the expenditure forecasts and included a series of structure meetings with key Goulburn-Murray Water staff. In particular the detailed review stage involved:

- A more in depth review of the key aspects of Goulburn-Murray Water's expenditure forecasts for 2008-13;
- Specific focus on the key issues that had been identified through the Issues Report and discussions with the ESC;
- An assessment of Goulburn-Murray Water's supporting systems and processes, including those used for asset management, capital planning, project management and budgeting;
- A more detailed review of the main and highest costing capital projects proposed during the 2008-13 timeframe; and
- A more detailed assessment of the impacts on operating expenditure of these capital projects.

The outcomes from this detailed review stage were outlined in the Draft Report. The Draft Report was made available to Goulburn-Murray Water for their comments and feedback, with this information being used to prepare this Final Report.

3. DETAILED ANALYSIS OF GOULBURN-MURRAY WATER'S PROPOSED EXPENDITURE

3.1 Operating Expenditure

A summary of Goulburn-Murray Water's historical and forecast operating expenditure, as included in the ESC's information template is shown in Table 3-1.

Table 3-1 Goulburn-Murray Water Historical and Forecast Operating Expenditure

			FIRST REG PERIOD		SECOND REG PERIOD				
	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Operating Expenditure Summary									
Business As Usual	67.39	70.41	82.31	101.00	90.80	95.27	82.47	81.72	81.49
Licence Fees	-	-	0.21	0.14	0.10	0.10	0.10	0.10	0.14
Environmental Levy	-	-	-	1.21	1.30	1.30	1.30	1.30	1.30
Total Prescribed BAU Opex	**67.39**	**70.41**	**82.52**	**102.35**	**92.19**	**96.67**	**83.87**	**83.12**	**82.93**
June 2006 Final decision			*82.66*	*86.40*					

3.1.1 General and Key Issues

- The recently announced Water Savings projects, including Shepparton Modernisation, Total Channel Control (TCC) – Central Goulburn 1234 Stage 3 and the Food Bowl Modernisation Project (FBMP), have not been included in G-MW's operating expenditure forecasts for 2008/13. However, G-MW has reduced both capex and opex forecasts in its Water Plan prior to receiving more information about the implementation of these projects. G-MW expects to know full details of the Food Bowl Modernisation Project in early to mid-2008.

- GM-W has highlighted uncertain operating environments going into the future in its Water Plan for the derivation of its operating expenditure forecasts. As a result, this has made comparisons between the future forecasts and historical expenditure levels problematic. G-MW has also stated that 2006/07 should not be considered as the Base Year due to the severe drought conditions. G-MW considers that operations and maintenance expenditure was below budget for that year and in comparison to previous years. A comparison of actual operating expenditure versus budget is shown in Table 3-2.

- This comparison shows that whilst expenditure on general operations (all services) was $2.4m under budget, G-MW had other specific drought related expenditure such as pumping of Waranga and Buffalo storages of $2.69m. Expenditure on customer funded works was also significantly higher ($1.78m) than budget. Similarly, whilst expenditure on general maintenance (all services) was $2.67m under budget, drought conditions and low channel flows allowed additional maintenance expenditure on advanced maintenance, rationalisation and water savings initiatives. The net effect was that G-MW's operating expenditure for 2006/07 was within 0.4% of budget – and in fact, actual expenditure was a lot closer to budget than for the two previous years.

Table 3-2 G-MW Operating Expenditure – Comparison of Actual vs Budget

All Services	2004/05			2005/06			2006/07		
ATY ACTIVITY DESCRIPTION	Actual ($000)s	Budget $(000)s	Variance $(000)s	Actual ($000)s	Budget $(000)s	Variance $(000)s	Actual ($000)s	Budget $(000)s	Variance $(000)s
EXPENDITURE – ALL G-MW Services									
Operations									
General – all services	23,558	22,274	(1,284)	22,995	23,489	494	20,328	22,733	2,405
Systems & Catchment mgmt (bulk water)	1,725	2,185	460	1,496	2,169	673	1,786	2,308	522
Pumping Waranga and Buffalo	-	-	-	-	-	-	2,691	-	(2,691)
Water savings initiatives	921	7,007	6,086	2,907	3,605	698	6,712	7,118	406
Customer funded works	1,738	263	(1,475)	796	283	(513)	2,234	449	(1,785)
MDBC Constructions	10,355	9,535	(820)	9,314	9,535	221	10,254	9,850	(404)
R&D	846	851	5	720	813	93	926	867	(59)
Total Operations	***39,143***	***42,115***	***2,972***	***38,228***	***39,894***	***1,666***	***44,931***	***43,325***	***(1,606)***
Maintenance									
General – all services	18,664	19,902	1,238	20,107	21,924	1,817	18,298	20,966	2,668
Advanced maintenance	-	-	-	1,805	-	(1,805)	11,328	9,278	(2,050)
Rationalisation	838	917	79	1,144	1,752	608	1,630	1,384	(246)
Water savings initiatives	498	-	(498)	1,019	1,801	782	1,442	866	(576)
Total Maintenance	***20,000***	***20,819***	***819***	***24,075***	***25,477***	***1,402***	***32,698***	***32,494***	***(204)***
Mgmt & Administration									
Mgmt & Admin – all services	10,172	10,019	(153)	11,553	11,383	(170)	12,793	13,725	932
Total Maintenance	***10,172***	***10,019***	***(153)***	***11,553***	***11,383***	***(170)***	***12,793***	***13,725***	***932***
Contract Expenditure									
MDBC Contracts (River Murray Water)	11,800	16,693	4,893	11,950	14,359	2,409	13,583	14,569	986
Gov't Services Contracts (Salinity)	4,854	5,491	637	4,597	4,716	119	4,677	4,965	288
Total Contract Expend	***16,654***	***22,184***	***5,530***	***16,547***	***19,075***	***2,528***	***18,260***	***19,534***	***1,274***
Total Operating Expenditure	***85,969***	95,137	9,168	90,403	95,829	5,426	108,682	109,078	396

- The breakdown of GM-W's forecast operating expenditure for 2008/13 is provided in the following table.

Table 3-3 Goulburn-Murray Water's Forecast Operating Expenditure by Activity

Category	2008/09	2009/10	2010/11	2011/12	2012/13	Total
	01/01/07 $m					
Operations	41.54	46.96	39.63	39.51	39.21	206.85
Maintenance	36.25	35.87	30.64	29.93	30.05	162.74
Customer Service	2.08	1.60	1.60	1.60	1.60	8.48
Corporate	10.93	10.85	10.59	10.68	10.63	53.68
Environmental Levy	1.30	1.30	1.30	1.30	1.30	6.5
License Fees	0.10	0.10	0.10	0.10	0.14	0.54
Total Operating Expenditure	**92.19**	**96.67**	**83.87**	**83.12**	**82.93**	**438.52**

- GM-W's forecasts show an increase in opex from 2008/09 to 2009/10 followed by a year-on-year decreasing gross operating expenditure through to 2012/13. Forecasts related to License Fees, Environmental Levies, Corporate and Customer Service operating expenditure generally remain steady through out the five year period, with the main changes in the gross opex being as a result of changes in the forecasts for Operations and Maintenance activities.

- GM-W's overall operating expenditure forecasts are derived from the summation of the forecasts allocated to Irrigation, Drainage, Domestic & Stock, Surface Water

Diversions, Groundwater Diversions and Bulk Water Services. The breakdown of the Operations and Maintenance recent historical spend and 2008/13 forecast for each of GM-W's services is provided in the table below.

Table 3-4 Goulburn-Murray Water's Forecast Operations and Maintenance Expenditure by Service Provided

Service		2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
		01/01/07 $m							
Irrigation	Operations	16.94	19.59	20.72	20.90	19.36	19.36	19.24	18.96
	Maintenance	15.66	22.11	28.97	28.50	28.13	22.83	21.35	21.27
Drainage	Operations	0.88	0.81	1.10	1.03	1.03	1.03	1.03	1.02
	Maintenance	2.22	3.44	3.97	3.49	3.46	3.47	3.48	3.49
Domestic & Stock	Operations	0.22	0.26	1.69	0.19	0.19	0.19	0.19	0.19
	Maintenance	0.12	0.06	0.14	0.16	0.18	0.18	0.18	0.18
Surface Water Diversions	Operations	1.81	1.64	2.14	1.90	1.90	2.05	2.05	2.05
	Maintenance	0.64	0.21	0.67	0.43	0.47	0.56	1.02	1.13
Groundwater Diversions	Operations	1.54	1.20	1.51	1.71	1.71	1.71	1.71	1.71
	Maintenance	0.44	0.14	0.30	0.28	0.28	0.29	0.57	0.62
Bulk Water Services	Operations	16.91	18.46	24.38	15.81	22.78	15.31	15.30	15.30
	Maintenance	3.50	3.86	3.48	3.39	3.35	3.32	3.35	3.35
Total Operations		**38.30**	**41.97**	**51.53**	**41.54**	**46.96**	**39.63**	**39.51**	**39.21**
Total Maintenance		**22.58**	**29.81**	**37.54**	**36.25**	**35.87**	**30.64**	**29.93**	**30.05**

- Comparison of the actual historical expenditure on Operations with the future forecasts show that for all GM-W's services an increase in expenditure has been forecast from the 2006/07 base year to the 2007/08 forecast budget. This increase is largely due to the purchase of permanent water entitlements ($7.86m) in 2007/08 associated with the required increase in environmental flows as part of the Lake Mokoan – Return to Wetlands project. Overall, the proposed spend on Operations is forecast to peak in the current year ($51.53m) before dropping back down and eventually reaching a level less than 2006/07 for the last two years of the second regulatory period.

- GM-W's opex forecasts show that for most of its services costs related to Operations remain fairly steady through the second regulatory period. The main exception to this is the forecast for operating the Bulk Water Services, which shows an increase from $15.81m in 2008/09 to $22.78m in 2009/10 before dropping down to in the region of $15.30m for the remaining three years of the period. This additional expenditure in 2009/10 is again associated with the Lake Mokoan project and $7.64m is planned for the decommissioning of the redundant assets as part of the Return to Wetland project.

- Comparison of the actual historical expenditure on maintenance activities with the future 2008/13 forecasts follow a similar pattern to the Operations forecasts, with the proposed expenditure forecast to peak in the current year before dropping back down and reaching a level similar tom 2006/07 in the last two years of the period. The forecast increases in maintenance activities for the most part relate to the proposed increase in Irrigation maintenance. G-MW has forecast this to increase by in the region of $6m/year for a three year period starting in 2007/08 from the actual expenditure incurred in the 2006/07 base year, before dropping back down to a level similar to 2006/07.

- This increase in Irrigation maintenance is attributed to the Advanced Maintenance Program and to the rationalisation of channels and on-farm assets to be undertaken as part of Infrastructure Reconfiguration. The scope of the proposed AMP maintenance has been reduced pending further details of the Food Bowl Modernisation Project; however, the Water Plan still shows expenditure of $7.42m on Rationalisation in both 2008/09 and 2009/10.

- GM-W has included expenditure related to its Advanced Maintenance Program (AMP) in its operating expenditure forecasts for 2008/13. However, in light of the Food Bowl Modernisation project, G-MW has reduced the Advanced Maintenance Program to the $41.68m included in the Water Plan. G-MW expects to revise the program in 2008 when it has additional information. The spend included in the Water Plan is for a scope of works considered to be the '*minimum level of advanced maintenance on major channels*'. The original 2nd period AMP spend was $68.24m prior to the Food Bowl Modernisation Project announcement. The original total annual forecast for the AMP and the revised program is provided in the following table.

Table 3-5 Goulburn-Murray Water's Original and Revised Forecast Expenditure on the Advance Maintenance Program

	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
	01/01/07 $m					
Original AMP Forecast	15.81	14.64	14.45	13.86	13.18	12.11
Revised AMP Forecast	12.89	8.49	8.30	8.40	8.20	8.30
Difference	-2.92	-6.15	-6.15	-5.46	-4.98	-3.81

- The revisions to the Advanced Maintenance Program were discussed with the Water Services Committees and agreement reached that maintenance would focus on major channels only until further details of the Food Bowl Modernisation Project are known. It will be necessary to review the ongoing maintenance requirements to be funded under the AMP compared to capital or maintenance expenditure to be provided under the modernisation projects.

- G-MW has allocated an operating expenditure of $1.37m/year during the second regulatory period for support and maintenance related to the automation of the irrigation systems, which has increased from the $0.78m that it has budgeted for in 2007/08. This is explained by an increase in the number of automated sites and the fact that currently support and maintenance is carried out by the equipment supplier under the installation contract maintenance period.

- GM-W contributes funds to share the costs of the Victorian Government's share of the Murray Darling Basin Commission's annual operating and capital expenditure. GM-W has forecast estimates for its contributions for 2008/13 based on its current cost share arrangements and the Committee's current budget as forward estimates for 2008/13 are not yet available from the Commission. GM-W has included an annual contribution of $10.35m/year for the second regulatory period. However, it has noted that any changes to the contribution level will result in changes being made to its operating forecasts. Over the last two years, the costs incurred by G-MW for its Murray Darling Basin Commission contributions have been $10.25m and $10.73m (both dollars of the day). Therefore, the estimates that GM-W has included in its forecast appear reasonable.

- G-MW has a cyclic maintenance program for its diversion meters. As a result of the maintenance program and increase in the number of meters installed, the maintenance forecast throughout the second regulatory period varies from year to year, although there is a general trend of increasing maintenance costs over the five year period, with the proposed expenditure at the end of the five year period being 146% higher than in the first year. This increase is associated with the significant increase in the number of diversion meters and the proposed program to meter groundwater diversions and unregulated surface water diversions in the future. G-MW's forecast expenditure on Diversions maintenance for 2008/13 is provided in the following table.

Table 3-6 Goulburn-Murray Water's Forecast Operating Expenditure on Diversions Maintenance

	2008/09	2009/10	2010/11	2011/12	2012/13
	01/01/07 $m				
Groundwater Diversions Maintenance	0.27	0.27	0.28	0.56	0.62
Unregulated Diversions Maintenance	0.12	0.12	0.14	0.48	0.53
Regulated Diversions Maintenance	0.31	0.33	0.41	0.52	0.59
Total	**0.70**	**0.72**	**0.83**	**1.56**	**1.74**

- The Lake Mokoan – Return to Wetlands project is fully funded and includes $7.42m decommissioning of the site and $0.49m attributed to 'Other' as operating expenditure. The $7.42m Opex relates to breaching of the dam wall and removal of redundant assets in 2009/10, following the planned $10.71m capital expenditure included in 2008/09 for related Offset measures elsewhere. There are still uncertainties as to the final scope and timing of works for this project and it is recommended that details are reviewed again once G-MW submits its revised Water Plan.

- The government has also funded $56m of the Infrastructure Reconfiguration project. During the second regulatory period, GM-W has forecast $17.38m to be spent on reconfiguration and a further $18.26m on rationalisation, with both projects included in GM-W's forecasts as operating expenditure. This expenditure relates to the decommissioning of redundant assets and compensation to irrigation customers for on-farm works. At the present time, GM-W has not included any provision in the forecasts to account for water savings from the Shepparton Modernisation and Food Bowl Modernisation projects.

- G-MW's current electricity contract for variable charges will expire during 2007/08. G-MW has calculated that variable charges make up approximately 35% of its total electricity costs and although it aims to absorb electricity price increases where possible, for high usage sites, such as pressurised pipeline services, a price impact has been forecast.

- ESC Annual Audit costs have been forecast at $73,200/year throughout the period. We consider this to be an overestimation and consider that an annual audit cost of $45,000/year should be sufficient to cover the cost of consultant's fee and the internal costs from time spent by GM-W's staff during the course of the audit.

- GM-W has deferred non-essential works on the Pyramid-Boort Gravity Irrigation system to reduce the burden on customers. It has included approximately $340,000/year for O&M in the opex forecasts to ensure service standards, asset management and environmental obligations are met.

- G-MW is developing Groundwater Intensive Management Plans for the Ovens, Mid-Goulburn and Kinglake stressed aquifers to allow intensive management practices from 2008/09 to ensure fair and equitable access to the limited water resources provided from these sources. As a result, GM-W has forecast an increase of $0.12m/year from 2008/09.

- G-MW aims to achieve 12% productivity improvements based on 2004/05 expenditure levels, with 5% expected to be achieved during the first regulatory period and the remaining 7% during the second period. Major initiatives that G-MW is implanting during the second regulatory period to achieve these productivity improvements include:

    - Capitalising on system improvements from strategic procurement;
    - Replacement of G-MW's financial management system;
    - Upgrading of the customer billing and administration system;
    - Implementation of a Greenhouse Gas Management Strategy;

- Enhancement of G-MW's current IT systems, telephony systems; and
- Upgrade of G-MW's current document management system.

3.1.2 Recommendations

G-MW has already reduced its planned maintenance expenditure on irrigation infrastructure under the Advance Maintenance Program (AMP) pending further details of the Food Bowl Modernisation Project therefore no further changes are recommended at this stage. It will however be necessary to review maintenance expenditure once details of the modernisation projects are known.

Similarly, the scope of rationalisation and reconfiguration projects is likely to change once details of the Food Bowl Modernisation Project and other planned modernisation projects are known. We therefore recommend that the forecast operating expenditure for decommissioning of assets and compensation to customers associated with rationalisation be reduced by 20% in 2008/09 and by 50% in 2009/10 pending further details of the proposed projects.

Given the delays to date and the fact that further changes are likely to the scope and timing of the Lake Mokoan – Return to Wetlands project, we recommend that the operating expenditure and costs of decommissioning redundant assets be spread across 2 years.

Our recommended changes to Goulburn-Murray Water's regulatory operating expenditure forecast are therefore as follows:

Table 3-7 Recommended Changes to Goulburn-Murray Water's Operating Expenditure for Regulatory Purposes

Item	Item/Description		$m				
			2008/09	2009/10	2010/11	2011/12	2012/13
	Lake Mokoan – Return to Wetlands: Decommissioning	Original Water Plan Forecast		7.60			
		Recommended Revised Forecast		4.00	3.60		
		Recommended Net Change		-3.60	+3.60		
	Infrastructure Reconfiguration: Rationalisation	Original Water Plan Forecast	7.42	7.42	2.15	0.88	0.39
		Recommended Revised Forecast	5.94	3.71	2.15	0.88	0.39
		Recommended Net Change	-1.48	-3.71	0	0	0
	ESC Annual Audit Costs	Original Water Plan Forecast	0.073	0.073	0.073	0.073	0.073
		Recommended Revised Forecast	0.045	0.045	0.045	0.045	0.045
		Recommended Net Change	-0.028	-0.028	-0.028	-0.028	-0.028
	Productivity Improvements	Original Water Plan Forecast	-	-	-	-	-
		Recommended Revised Forecast					
		Recommended Net Change					
Total Recommended Net Change:			-1.51	-7.34	+3.57	-0.03	-0.03
Original Water Plan Total Regulatory Opex:			92.19	96.67	83.87	83.12	82.93
Recommended Revised Total Regulatory Opex:			**90.68**	**89.93**	**87.44**	**83.09**	**82.90**
% Change:			-1.6%	-7.6%	+4.3%	-	-

3.2 Capital Expenditure

A summary of Goulburn-Murray Water's historical and forecast capital expenditure, as included in the ESC's information template is shown in Table 3-8.

Table 3-8 Goulburn-Murray Water Historical and Forecast Capital Expenditure

			FIRST REG PERIOD		SECOND REG PERIOD				
	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Capital Expenditure Summary									
Irrigation	25.89	26.81	23.25	37.20	19.55	17.27	15.66	16.27	16.49
Drainage	4.71	4.93	4.92	8.31	8.17	8.63	7.88	9.10	8.48
Domestic and stock	0.57	9.71	4.73	0.72	-	-	-	-	-
Surface water diversions	0.03	0.91	1.85	2.04	1.95	1.19	1.58	1.58	1.60
Groundwater diversions	-	-	0.83	1.17	1.15	0.57	0.42	0.42	0.42
Bulk water services	29.39	15.64	9.76	47.56	25.92	11.45	7.59	10.69	10.46
Total Prescribed BAU Capex	**60.58**	**58.00**	**45.35**	**97.01**	**56.75**	**39.11**	**33.12**	**38.06**	**37.45**
June 2006 Final decision	*57.10*	*58.83*	*63.95*	*51.81*					

3.2.1 General and Key Issues

- Goulburn-Murray Water's Water Plan - and the originally submitted ESC Template – were prepared in 2007/08 dollars. The Template has since been revised to reflect the ESC required base date of 1 January 2007.

- The current 2008/13 capital program is slightly front loaded, with $56.75m proposed for 2008/09. Forecast capital spend in the remaining years is between $33.1m and $39.1m. The capital budget for 2007/08 is higher than G-MW has achieved in recent years, at $97.0m and there is potential for projects included in this year to slip into the second regulatory period. In particular, components of the Dam Safety Upgrade Program and Lake Mokoan – Return to Wetlands Project are unlikely to be completed in 2007/08.

- Goulburn-Murray Water's capital expenditure program is driven by the renewal of aging infrastructure, compliance (including dam safety upgrades and diversion metering), growth (related to the construction of new surface water drains) and Water Savings as required under Victoria's water reform package '*Securing our Water Future Together*'.

- Recently announced Water Savings projects, including Shepparton Modernisation, Total Channel Control (TCC) – Central Goulburn 1234 Stage 3 and the Food Bowl Modernisation Project (FBMP), have not been included in the Water Plan capital expenditure forecast. GM-W's asset replacement and refurbishment projects included in its 2008/13 Water Plan will require adjustment in light of these modernisation projects, but at the time of the draft report there was insufficient information to allow G-MW to accurately adjust its capital forecasts. More detailed information on the modernisation projects is not expected until after the capital expenditure review process has been completed and, as such, GM-W is proposing to revise its capital program during 2008 and resubmit it to the ESC.

- As a result, GM-W has reduced its renewals program for its irrigation districts pending more information on the modernisation water saving projects. For example, assets such as regulators, meters, offtakes and drainage inlets have been excluded on the assumption that the Food Bowl Modernisation Project will focus on upgrades to more modern technology.

- The Dam Safety program ($26.99m over 2008/13) does not include allowances for river health works. Should these be required to meet G-MW's responsibilities under the Statement of Obligations it would seek external investment or exemption by DSE. If these were not available it would result in GM-W further prioritising its Dam Safety program to accommodate the required river health works within the Period.

- The $28m Surface Water Management Program, which includes the Shepparton Irrigation Region and Loddon Murray Surface Water Management Programs, is entirely externally funded. It is not believed that this program will be affected by the Shepparton Modernisation Program; however, it is noted that historically the actual expenditure on surface water and drainage works has been well below budget.

- G-MW's Reconfiguration Program is a recurrent $3.385m in each year of the second period, a total of $16.925m in the five years. Planning has been based on State Government investment of $6m for planning and a further $50m for implementation. However, this program is likely to be impacted by the Food Bowl Modernisation program, although G-MW does not expect to know the full impact for some time.

- G-MW's Irrigation Area Programs ($15.9m total over 2008/13) are for replacement of assets that at the end of their useful lives. GM-W has revised the original programs to make allowances for other known G-MW capital programs in the second regulatory period, i.e. System Reconfiguration and the Advanced Maintenance Program, but will further adjustments will be required to take into account the impact of the Modernisation projects.

- GM-W has included the Waranga Western Main Channel project in its capital program for 2008/13 as an ongoing program based on the replacement of assets nearing the end of their useful life.

- Government funding for capital projects over the second period amounts to $48.9m, with customer contributions totalling a further $17.68m. This government funding is largely in place through the ongoing Surface Water Management Program, the Lake Mokoan – Return to Wetlands project and the Goulburn Murray Water Recovery Package.

3.2.2 Food Bowl Modernisation Project Implications

The overall Food Bowl Modernisation Project (FBMP) will take up to eight years to complete, generating up to 450 GL of water each year when completed.

The first stage of the project, reducing losses through leaks, evaporation and other inefficiencies to save up to 225 GL annually, with the water savings shared equally between irrigators, the environment and Melbourne, is expected to be completed by 2012.

At the time of the capital expenditure review, the full implications of the Food Bowl Modernisation Projects on G-MW's capital program were not known but are likely to include:

- A capital contribution on $100m by G-MW, likely to be in the form of a cash contribution and funded through long term borrowing. This contribution in not expected to be required until the latter stages of Stage 1 of the project;
- Reduced/avoided capital renewal expenditure;
- Reduced/avoided advanced maintenance and routine maintenance;
- Productivity savings from increased automation; and
- New technology support and maintenance costs.

3.2.3 Capital Planning Processes

Goulburn-Murray Water uses a *Whole of Business Risk Framework* to prioritise capital investment. This Framework is outlined in the 2008 Water Plan.

3.2.4 Asset Management Systems and Processes

Goulburn-Murray Water operates assets with a total replacement cost of over $5.1 billion (based on October 2007 valuations) comprising mainly of Bulk Water assets ($3.1 billion), and Retail Distribution assets ($2.0 billion).

Bulk Water assets managed by G-MW comprise dams, weirs and associated carriers and canals that deliver bulk water to G-MW irrigation areas. G-MW manages 13 Victorian storages and four dams owned by the Murray Darling Basin Commission (MDBC). These dams range in age from 11 years to 136 years and in height from 6 to 180 metres and include Australia's highest dam, Dartmouth dam. The major asset components managed at these storages include embankments, spillways, spillway gates, outlet structures and public use facilities.

G-MW Retail Distribution infrastructure includes the network of assets used to provide irrigation and drainage services to customers in the G-MW irrigation region. These assets include earthen channels and drains, pipelines, meter outlets and associated structures such as bridges, culverts and regulators.

Table 3-9 Retail Distribution Assets

Distribution Assets (as at 1st October 2007)	Irrigation Assets	Primary Surface Drains	Domestic & Stock	Total
Open Channels (km)	6,276	3,125	133	9,534
Pipelines (km)	252	83	663	998
Structures	18,276	6,724	326	25,326
Outlets	21,709	-	1,148	22,857
Drain Inlets	-	9,045	-	9,045

G-MW has adopted a whole of life asset management approach/framework which emphasises service delivery, risks and costs. G-MW Asset Management Framework describes the process in which assets are to managed, both on a day to day basis (maintenance and operations) and on a medium to long-term basis (strategic and forward planning).

Asset Condition Rating (ACR) is one of the key parameters used in the Lifecycle Asset Management decision making process. When assessing any asset it is important to note that the condition of an asset may be directly related to the age of the asset. Assets are rated on a scale of 1 to 6, where new assets are assigned a condition rating (ACR) of one (1) while assets that are at the end of their useful life are assigned an ACR six (6). The ACR is an important indicator that G-MW utilises to determine when assets will most likely need replacement. Assets with ACR's from 4 to 6 are reviewed and validated prior to being replaced, reconfigured or modernised.

G-MW Risk Management Framework
Asset Management decisions on operating, maintaining, rehabilitating and replacing assets are made using G-MW Risk Management framework.

G-MW addresses risk by ensuring its *'whole of business risk management framework'* is incorporated into existing management and decisions making processes, and that it will

identify potential events (risks) and minimise and adverse impacts on G-MW, its employees, stakeholders, the community and the environment, in operating the business.

Asset condition and consequence of asset failure are the key inputs used to determine the most appropriate best practice approach in managing assets. This allows the identification of assets that pose potential unacceptable business risk to G-M Water. The application of asset management techniques to these potential high risk assets can result in the formulation and delivery of appropriate treatments to reduce the risk to an acceptable level.

G-MW Asset Management Information Systems
Reliable asset information is critical for sound asset management. The following software tools are used by G-MW to assist with the day to day and long-term management of assets.

- **Asset Register – AssetLife**
  G-MW Asset Register is a detailed database all of G-MW's physical assets organised in a hierarchical structure. The database utilises the software *AssetLife* and allows the systematic recording of G-MW asset data. G-MW implemented *AssetLife* in 1998 and continuous improvement/upgrades have been made to ensure the integrity of asset data.
- **AssetLife Works Module**
  The *AssetLife* Works Maintenance Module generates and tracks *work orders* for planned and unplanned maintenance, capital works and service (non-asset) related programs. A *Work Order* is a set of data and instructions that describe the manner in which an asset or service related activity is to be carried out. All Work orders for planned maintenance and capital works include job cost estimates. The progress of a work order is monitored until a job request has been closed.
- **Project Priority System**
  The Goulburn-Murray Water Project Priority System (PPS) has been developed to support asset replacement planning. The Project Priority System uses current asset information including the Asset Condition Rating and a Risk Score to prioritise asset replacement projects.

  The main output of the Project Priority System is a listing of asset replacement projects prioritised by Risk Score, where: *Risk Score = Likelihood X Consequence*. Consequences that are considered include water loss, public liability risks and occupational health and safety risk.

Advance Maintenance Program
G-MW introduced an Advance Maintenance Program (AMP) to lengthen the life of assets by performing preventative or proactive maintenance. Timely rehabilitation techniques such as rock armouring, structural repairs, beaching and the reinstatement of eroded bank material to channel walls are used to increase asset life and efficiency.

AMP target assets such as channels, drains and concrete structure. Assets that are approximately midway through their life expectancy are identified and assessed before being placed under the AMP. Assets that are cheaper to replace may be excluded from the AMP.

3.2.5 Major Capital Programs

G-MW has grouped together similar individual projects into a number of capital programs. The ten highest expenditure programs over the duration of the Second Regulatory Period are listed in Table 12 of the Water Plan (included as Table 3-10) and are described in Appendix 1 of this report.

Table 3-10 Goulburn-Murray Water: Top Ten Capital Programs

Program – Original Water Plan (07/08 $)	2008/09	2009/10	2010/11	2011/12	2012/13	Total
	07/08 $'000					
Surface Water Management Program	5,649	5,607	4,990	6,015	6,443	28,704
Dam Safety Upgrade Program	10,400	3,400	1,350	6,300	6,200	27,650
Reconfiguration Program	3,467	3,467	3,467	3,467	3,467	17,335
Mokoan - Return to Wetlands (Water Savings Program)	10,968	-	-	-	-	10,968
Diversions Metering Program	2,327	1,644	2,026	2,025	2,026	10,048
Central Goulburn Irrigation Area Channel Remodelling Program	1,346	1,346	1,346	1,346	1,346	6,730
Torrumbarry Irrigation Area Channel Remodelling Program	1,061	1,061	1,061	1,061	1,061	5,305
Rochester Irrigation District Area Culvert Program	1,014	1,013	1,014	1,013	1,014	5,068
Waranga Western Channel East & West Subway Program	591	1,016	983	1,313	1,101	5,004
Rochester Irrigation Area Channel Remodelling Program	852	852	852	852	852	4,260
Top Ten Capital Programs	**37,675**	**19,406**	**17,089**	**23,392**	**23,510**	**121,072**

Program – Converted to 01/01/07 $m	2008/09	2009/10	2010/11	2011/12	2012/13	Total
	01/01/07 $m					
Surface Water Management Program	5.51	5.47	4.87	5.87	6.29	28.02
Dam Safety Upgrade Program	10.15	3.32	1.32	6.15	6.05	26.99
Reconfiguration Program	3.38	3.38	3.38	3.38	3.38	16.92
Mokoan - Return to Wetlands (Water Savings Program)	10.71	-	-	-	-	10.71
Diversions Metering Program	2.27	1.60	1.98	1.98	1.98	9.81
Central Goulburn Irrigation Area Channel Remodelling Program	1.31	1.31	1.31	1.31	1.31	6.57
Torrumbarry Irrigation Area Channel Remodelling Program	1.04	1.04	1.04	1.04	1.04	5.18
Rochester Irrigation District Area Culvert Program	0.99	0.99	0.99	0.99	0.99	4.95
Waranga Western Channel East & West Subway Program	0.58	0.99	0.96	1.28	1.07	4.89
Rochester Irrigation Area Channel Remodelling Program	0.83	0.83	0.83	0.83	0.83	4.16
Top Ten Capital Programs	**36.78**	**18.94**	**16.68**	**22.84**	**22.95**	**118.19**

The main projects and programs included in G-MW's 2008/13 capital expenditure forecast are outlined below.

Surface Water Management Program

This is a well established program implemented by G-MW in partnership with Catchment Management Authorities, DSE, DPI, irrigators and other catchment stakeholders. The objective of the program is to improve the health of natural waterways and to improve irrigation productivity by the construction of both primary surface drains and community surface drains.

The program is externally funded and managed by Program Managers. Whilst G-MW claim that the total estimated investment detailed in the Water Plan is as advised by the Program Managers for G-MW to achieve program responsibilities, it is noted that in recent years, actual expenditure on this program has been well below budget each year. G-MW's annual budget and achieved actual expenditure for its Surface Water Management Program since 2004/05 is provided in the following table.

Table 3-11 Goulburn-Murray Historical Actual Expenditure vs Budget for the Surface Water Management Program

Year	Actual Expenditure	Budget	% of Budget Achieved
2004/05	$3.27m	$5.10m	64.2%
2005/06	$3.81m	$6.49m	58.6%
2006/07	$3.64m	$4.90m	74.3%

G-MW's budget for its Surface Water Management Program during the current year is $6.90m.

Dam Safety Upgrade Program

Goulburn-Murray Water is responsible for the management of a number of bulk water storages and therefore has responsibilities (as defined in the Statement of Obligations) retaining to Dam Safety. The Program was previously known as the Dam Improvement Program (DIP) and approximately $100m worth of capital works has been completed between 1998 and 2006, including a $50m upgrade of the major G-MW storage Lake Eildon.

Details of G-MW's Dam Safety Upgrade Program for the second regulatory period are provided in Table 3-13.

Dam safety is incorporated in G-MW's *Whole of Business Risk Management Framework* and a program of dam safety upgrade projects has been prioritised based on comparison with life-safety tolerability limits defined in ANCOLD Guidelines.

GM-W's estimates for its Dam Safety Upgrade Program do not include any allowances for river health and environmental risk minimisation, which are requirements of G-MW under its Statement of Obligations. GM-W's cost estimates for the program have been based on similar projects that it has previously completed for which river health works were not required. As a result, GM-W has noted that if the river health related works are required, that it would seek external investment for either full or partial funding or apply to the DSE for exemption. If external investment is not available or if exemption is not granted, GM-W will re-prioritise the current Dam Safety Program to include the river health works within the budget and timeframe allocated for the program in the current Water Plan.

G-MW's historical expenditure on dam safety has typically been less than budget – primarily due to delays in large projects resulting in significant variations in year on year expenditure. For example, a delay in obtaining DTF approval for the Cairn Curran dam improvement project resulted in expenditure being carried over from 2006/07 into 2007/08.

G-MW's annual budget and achieved actual expenditure for its ongoing Dam Safety program since 2004/05 is provided in the following table.

Table 3-12 Goulburn-Murray Historical Actual Expenditure vs Budget for the Dam Safety Program

Year	Actual Expenditure	Budget	% of Budget Achieved
2004/05	$25.51m	$32.42m	78.7%
2005/06	$12.48m	$19.66m	63.4%
2006/07	$25.83m	$38.37m	67.3%

G-MW's budget for Dam Safety work during the current year is $12.96m.

Planned timing of individual projects is indicated in Table 3-13 based on the prioritisation of upgrade works and the anticipated availability of funding. Cost estimates are based on G-MW's previous experience and delivery to date of the Dam Improvement Program. More detailed estimates are prepared as part of the project planning and preliminary design phases for each of the individual projects.

Table 3-13 Dam Safety Upgrade Program

Service Name	Activity	Project	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Total
William Hovell	Dam Safety Upgrade	Increase flood capacity	318,000	7,400,000					7,718,000
Buffalo		Increase flood capacity				1,350,000	6,000,000	3,700,000	11,050,000
Nillah Cootie								300,000	300,000
Goulburn Weir		Weir crest anchors	4,654,000	2,500,000					7,154,000
Eppalock		Secondary embankment filters					300,000	2,200,000	2,500,000
Cairns Curran	Dam Improvement Program		6,612,000						6,612,000
Tullaroop		Embankment filters		500,000	2,900,000				3,400,000
Laanecoorie			1,600,000						1,600,000
Newlyn		Interim strategy	100,000		500,000				600,000
Total – Dam Safety Upgrade Program			**13,284,000**	**10,400,000**	**3,400,000**	**1,350,000**	**6,300,000**	**6,200,000**	**40,934,000**
Total – Water Plan 2008 – 2013 (07/08 dollars)				**10,400,000**	**3,400,000**	**1,350,000**	**6,300,000**	**6,200,000**	**27,650,000**

Service Name	Activity	Project	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Total
William Hovell	Dam Safety Upgrade	Increase flood capacity	310,438	7,224,028					7,534,466
Buffalo		Increase flood capacity				1,317,897	5,857,320	3,612,014	10,787,231
Nillah Cootie								292,866	292,866
Goulburn Weir		Weir crest anchors	4,543,328	2,440,550					6,983,878
Eppalock		Secondary embankment filters					292,866	2,147,684	2,440,550
Cairns Curran	Dam Improvement Program		6,454,767						6,454,767
Tullaroop		Embankment filters		488,110	2,831,038				3,319,148
Laanecoorie			1,561,952						1,561,952
Newlyn		Interim strategy	97,622		488,110				585,732
Total – Dam Safety Upgrade Program			**12,968,106**	**10,152,688**	**3,319,148**	**1,317,897**	**6,150,186**	**6,052,564**	**39,960,589**
Total – Water Plan 2008 – 2013 (converted to 01/01/07 dollars)				**10,152,688**	**3,319,148**	**1,317,897**	**6,150,186**	**6,052,564**	**26,992,483**

Reconfiguration Program

GM-W's Reconfiguration Program is being undertaken to fulfil its obligations outlined in the Victorian Government's *Securing Our Water Future Together* and as part of its Water recovery Savings program to deliver 25GL of water savings to the environment by 2009. The main objective of the Reconfiguration Program is to develop viable long-term irrigation areas through a restructured water delivery system. The Reconfiguration Program includes elements of both reconfiguration (modifications to the existing irrigation systems) and rationalisation (decommissioning and removal of redundant channels or assets).

GM-W started the Reconfiguration Program in 2006/07, although none of the $4.7m budget set aside for the work was spent during the year. The current year budget for the program has been forecast as $3m. Reconfiguration projects are identified as part of G-MW's overall asset renewal / replacement program and detailed Reconfiguration Strategies have been developed for each of the irrigation areas.

The initial planning has been based on external funding provided by State Government; $6m of planning and a further $50m for implementation of the plan. However, the Food Bowl Modernisation Program has now become the main driver and investment source for GM-W's system modernisation and reconfiguration. Although G-MW has undertaken initial discussions with the DSE in relation to integrating its program and the work that it has already carried out with the wider Food Bowl Modernisation Project, the full details of the project have not yet been finalised and are not expected until early-mid 2008. The extent of G-MW's reconfiguration program will be determined by the level of external investment that it secures, and, as such, the program that G-MW has included in its 2008/13 Water Plan is likely to change when the full details of the Food Bowl Modernisation Program are known.

Lake Mokoan – Return to Wetlands

The original decision to decommission Mokoan was summarised in the *Our Water Our Future* White Paper in June 2004. In January 2007, a community action group (Justice for the Broken Valley) opposed to the full decommissioning presented DSE and the Victorian Government with an alternative, termed the Modified Mokoan Storage Proposal.

In March 2007, the Minister directed DSE to undertake a full and comprehensive review of the Modified Mokoan Proposal. The review has now been completed and the Minister announced on 14 December that the decommissioning of Lake Mokoan should proceed as planned.

The full decommissioning includes a number of key components:

- Provision of an alternative supply to the approximately 50 diversion points located around Lake Mokoan and along the Inlet and Outlet Channels. The major components of the works required include a major pump station, pipeline and operational pondage, combined with a number of spur pipelines.
- Provision of measures, termed "Offsets" to maintain the reliability of supply to existing irrigation users in the Broken River system. The measures that have been identified are mainly aimed at reducing demand by either more efficient water use, transfer of demand to the Goulburn River system or purchase of water entitlement from within the Broken System. A list of over 50 individual offset measures has been investigated. A combination of some of these measures will be required to achieve required supply reliability outcome.
- Re-introduction of Lake Boga into the River Murray regulated supply system combined with changes to operation of Lake Charm and Kangaroo Lake. This will allow capture of up to 19,000 ML of unregulated water for subsequent release to supply downstream demand. In so doing, equivalent volume of water will be able to be released from Lake Jindabyne into the Snowy River.

- Breaching of the Mokoan dam wall and removal of redundant components of the inlet and outlet control structures and channels.
- Rehabilitation of Lake Mokoan after draining. The objective is to return the remaining wetlands to their former condition and to facilitate appropriate land use in the surrounding newly created "dry" areas of the Lake.

G-MW has been assigned the task of managing the delivery of the first 4 of the above components, while DSE is directly managing the development and implementation of the Future Land Use Strategy to rehabilitate the Lake Mokoan site.

G-MW has advised that all action on purchase and development of the Final Supply Reliability Offset Package has been suspended (since April 2007) pending the Government's determination on the Modified Mokoan Storage Proposal. Furthermore, in terms of the 2007/08 forecast, the forward program and the risks and uncertainties in completing the project, G-MW advises that:

"In view of the recent review of the Modified Mokoan Proposal by DSE and the Government, the 2007/08 forecast for the project will not be achieved.

More specific information about the scope of the project is required before a more current forecast can be developed. The forward look program is also dependent on the scope of the project.

Significant risks/uncertainties currently affecting the project program and estimates include:

- Project Scope uncertainty.
- Funding uncertainty.
- Ongoing community/stakeholder agitation and associated political influences.
- Uncertain and increasing price of water entitlement purchases.

Diversions Metering Program

The aim of the Diversions Metering Program is to improve the accounting of water use to support effective compliance management. The program consists of the metering of unregulated streams and aquifers, replacement of obsolete meters, upgrading meter sites to comply with legislation and enhancing meter sites with remote monitoring technology.

In consultation with DSE, G-MW plans to meter groundwater entitlements greater than 20 ML and unregulated surface water entitlements greater than 10 ML. An estimated total of 1,890 sites are planned to be metered by 2009. Following on from this, a ten year metering project has been developed to install remote monitoring technology to specific strategic sites to further improve the effectiveness of compliance management. It is proposed to install this technology at about 1,260 sites over the ten year period 2010/11 to 2019/20.

G-MW has suggested that consideration may need to be given to lowering the metering thresholds in order to achieve greater metering percentages if drought conditions continue. However, G-MW maintains that such an extension of the existing program could only proceed with additional external funding.

Irrigation Area Programs – Channel Remodelling

Asset replacement programs are outlined in the Water Plan for the Central Goulburn, Torrumbarry and Rochester Irrigation Areas. These programs represent assets that will be at the end of their useful life during the second regulatory period. Replacement timing and cost is estimated from G-MW's established asset management processes including condition assessment, estimate of remaining life and unit cost models.

The identified Channel Remodelling programs are major components of G-MW's $16m per year Capital Works Plan for Distribution (Irrigation) Assets. The Capital Works Plan

comprises works to upgrade, refurbish or replace existing assets with assets of equivalent capacity or performance capability. It also includes expenditure to create new assets or to increase the capacity of existing assets beyond their original design capacity.

We reviewed G-MW's asset management processes and the five-year Capital Works Plan. It was noted that the Plan has been revised to take account of the both the Food Bowl Modernisation Project and the Shepparton Modernisation Project. Based on the fact that the FBMP will upgrade selected assets throughout Goulburn-Murray's irrigation districts with more modern technology, assets such as regulators, meters, offtakes and drainage inlets have been excluded from the Revised Capital Works Plan. It was also noted that the Capital Works budget for the Shepparton Irrigation area channels has been significantly reduced from almost $2.0m to $140,000 pending details of the Modernisation project.

3.2.6 Capacity to Deliver the Capital Program

Although Goulburn-Murray Water has well developed systems related to asset management and capital works planning, a study of historical actual expenditure versus budget, indicates that typically G-MW has failed to achieve budget by a significant margin in recent years. The historical capital budget, actual expenditure and the variance between the two is shown in Table 3-14.

However, in terms of the level of capital expenditure that GM-W achieved in 2004/05 and 2005/06, the historical actual spend exceeds the level of spend that has been forecast for 2008/13 for four of the five years. GM-W achieved capital expenditures of $56.83m in 2004/05, $54.99m in 2005/06 and $45.46m in 2006/07, and has forecast a capital spend of less than $40m for each year in 2009/13.

The forecast for the first year of the period, $56.75m is still within the range of the $56.83m that G-MW was able to achieve in 2004/05.

Although G-MW delivered capital projects totalling $45.5m in 2006/07, this was less than 50% of the budgeted $91.25m and $18.5m below the forecast in the 2006 Water Plan. Significant project variances were:

- Lake Mokoan Works – delays to the confirmation of the offset package and inclusion of some recurrent items in the capital program have lead to large reduction in revised forecast over all projects of $15m;
- Cairn Curran Dam Improvement – Project scope was reduced and the 2006/07 spend was delayed pending treasury approval, resulting in a variance of $6.2m; and
- Central Goulburn Channel Automation – a $3.9m underspend was incurred as a result of the project being redefined and deferred pending final DSE approval.

Therefore, based on the evidence that was provided to us we consider that, whilst GM-W has the capacity to deliver the scope of works included in each year in its 2008/13 Water Plan, based on historical actual spend, it is likely that there will be slippage of some of the major projects. In particular, we believe that there are likely to be delays in implementation of some of the Dam Safety Upgrade projects and of the Lake Mokoan – Return to Wetland project.

Moreover, in addition to the capital works program described in G-MW's Water Plan, the recently announced Shepparton Modernisation, Total Channel Control – Central Goulburn 1234 Stage 3 and the Food Bowl Modernisation Project will all add to the list of projects to be implemented by Goulburn-Murray Water.

As a result, G-MW propose to develop a revised capital expenditure forecast during 2008 when more specific information regarding these significant water savings projects is known. Further analysis of this revised forecast will be required to determine the impact of these additional projects on G-MW's overall capacity to achieve the capital works program.

Table 3-14 G-MW Historical Expenditure

ORIGINAL		2004/05			2005/06			2006/07			2007/08
ATY	ACTIVITY DESCRIPTION	Actual $(000)s	Budget $(000)s	Variance $(000)s	Actual $(000)s	Budget $(000)s	Variance $(000)s	Actual $(000)s	Budget $(000)s	Variance $(000)s	Budget $(000)s
CAPITAL											
300	G-MW Capital	19,591.1	22,899.3	3,308.2	18,447.9	24,103.5	5,655.6	20,061.1	26,935.8	6,874.7	34,859
356	Dam Safety	26,131.9	33,210.4	7,078.5	12,778.7	20,140.0	7,361.3	6,400.2	12,360.0	5,959.8	13,284
		45,723.0	**56,109.7**	**10,386.7**	**31,226.6**	**44,243.5**	**13,016.9**	**26,461.3**	**39,295.8**	**12,834.5**	**48,143**
340	Community Surface Drains	42.2	1,158.1	1,115.9	348.8	868.6	519.8	74.6	845.0	770.4	42
367	Recoverable Works	142.5	25.7	(116.8)	50.9	25.0	(25.9)	131.6	25.7	(105.9)	-
		184.7	**1,183.8**	**999.1**	**399.7**	**893.6**	**493.9**	**206.2**	**870.7**	**664.5**	**42**
314	Surface Water Mgmt Program	3,354.5	5,221.7	1,867.2	3,897.0	6,650.3	2,753.3	3,729.8	5,020.8	1,291.0	7,070
330	Water Savings	8,953.2	7,400.0	(1,553.2)	20,801.3	26,360.0	5,558.7	16,171.7	43,583.2	27,411.5	44,829
331	Water Savings - Reconfiguration	-	-	-	-	-	-	-	4,700.0	4,700.0	3,105
		12,307.7	**12,621.7**	**314.0**	**24,698.3**	**33,010.3**	**8,312.0**	**19,901.5**	**53,304.0**	**33,402.5**	**55,004**
		58,215.4	**69,915.2**	**11,699.8**	**56,324.6**	**78,147.4**	**21,822.8**	**46,569.0**	**93,470.5**	**46,901.5**	**103,189**

CONVERTED TO 01/01/07 DOLLARS		2004/05			2005/06			2006/07			2007/08
ATY	ACTIVITY DESCRIPTION	Actual $(000)s	Budget $(000)s	Variance $(000)s	Actual $(000)s	Budget $(000)s	Variance $(000)s	Actual $(000)s	Budget $(000)s	Variance $(000)s	Budget $(000)s
CAPITAL											
300	G-MW Capital	19,125.22	22,354.75	3,229.53	18,009.21	23,530.32	5,521.11	19,584.05	26,295.27	6,711.22	34,030.05
356	Dam Safety	25,510.48	32,420.66	6,910.17	12,474.82	19,661.07	7,186.25	6,248.00	12,066.08	5,818.08	12,968.11
		44,635.71	**54,775.41**	**10,139.70**	**30,484.03**	**43,191.39**	**12,707.36**	**25,832.05**	**38,361.35**	**12,529.30**	**46,998.16**
340	Community Surface Drains	41.20	1,130.56	1,089.36	340.51	847.94	507.44	72.83	824.91	752.08	41.00
367	Recoverable Works	139.11	25.09	-114.02	49.69	24.41	-25.28	128.47	25.09	-103.38	-
		180.31	**1,155.65**	**975.34**	**390.20**	**872.35**	**482.16**	**201.30**	**849.99**	**648.70**	**41.00**
314	Surface Water Mgmt Program	3,274.73	5,097.53	1,822.80	3,804.33	6,492.16	2,687.83	3,641.11	4,901.41	1,260.30	6,901.88
330	Water Savings	8,740.29	7,224.03	-1,516.26	20,306.65	25,733.16	5,426.51	15,787.14	42,546.79	26,759.65	43,762.97
331	Water Savings - Reconfiguration	-	-	-	-	-	-	-	4,588.23	4,588.23	3,031.16
		12,015.02	**12,321.56**	**306.53**	**24,110.97**	**32,225.32**	**8,114.34**	**19,428.24**	**52,036.43**	**32,608.19**	**53,696.00**
		56,831.04	**68,252.62**	**11,421.58**	**54,985.20**	**76,289.05**	**21,303.85**	**45,461.59**	**91,247.77**	**45,786.18**	**100,735.17**

3.2.7 Recommendations

Goulburn-Murray Water has stated that it intends to prepare a revised capital expenditure forecast and to reissue its Water Plan once further details are available for:

- Food Bowl Modernisation Project;
- Other Modernisation / Water Savings projects (such as Shepparton Modernisation and TCC-CG 1234 Stage 3); and
- Lake Mokoan – Return to Wetlands project.

It is recommended that a further review of the revised capital expenditure forecast is undertaken once this revised documentation is available. It is also recommended that a further review of the Dam Safety Upgrade Program is undertaken at the same time to verify the likely timing of proposed projects.

Based on historical actual expenditure, we believe that the forecast expenditure in the current G-MW Water Plan for Drainage works, primarily Community Surface Drains and the Surface Water Management Program, is optimistic. We recommend that the forecast for this category of expenditure be reduced by 20%.

Whilst recognising that the Dam Safety Upgrade Program is based on sound planning and prioritisation principles, it is again noted that historically actual expenditure has been significantly less than budget. We understand and appreciate that the Program comprises a number of distinct individual upgrade projects; however, we recommend that the forecast expenditure for the overall Dam Safety Upgrade Program be more evenly distributed over the five year period of the Water Plan.

Similarly, given the uncertainty surrounding the final scope of the Lake Mokoan – Return to Wetlands Project, we recommend that the forecast capital expenditure for this major project be spread over the first two years of the Water Plan period.

Our recommended changes to Goulburn-Murray Water's regulatory capital expenditure forecast are as follows:

Table 3-15 Recommended Changes to Goulburn-Murray Water's Capital Expenditure for Regulatory Purposes

Item	Item/Description		$m				
			2008/09	2009/10	2010/11	2011/12	2012/13
	Drainage (primarily Surface Water Management Program)	Original Water Plan Forecast	8.17	8.63	7.88	9.10	8.48
		Recommended Revised Forecast	6.54	6.90	6.30	7.28	6.78
		Recommended Net Change	-1.63	-1.73	-1.58	-1.82	-1.70
	Dam Safety Upgrade Program	Original Water Plan Forecast	10.15	3.32	1.32	6.15	6.05
		Recommended Revised Forecast	5.15	5.32	4.32		
		Recommended Net Change	-5.00	+2.00	+3.00		
	Lake Mokoan – Return to Wetlands (Water Savings Program)	Original Water Plan Forecast	10.71				
		Recommended Revised Forecast	5.71	5.00			
		Recommended Net Change	-5.00	+5.00			
Total Recommended Net Change:			-11.63	+5.27	+1.42	-1.82	-1.70
Original Water Plan Total Regulatory Capex:			56.75	39.11	33.12	38.06	37.45
Recommended Revised Total Regulatory Capex:			**45.12**	**44.38**	**34.54**	**36.24**	**35.75**
% Change:			-20.5%	+13.5%	+4.3%	-4.8%	-4.8%

APPENDIX A

Major Programs Planned by Goulburn-Murray Water

Table A1 Goulburn-Murray Water Major Capital Programs

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Surface Water Management Program	Long running program implemented on behalf of Catchment Management Authorities, DSE, DPI and other stakeholders. Aims to improve the health of natural waterways and improve irrigation productivity by providing appropriate drainage and surface water management initiatives.	28.02	13.7%	Appropriate. Detailed designs and approvals are prepared for work up-to 3 years ahead. Implementation can be ramped up or scaled back as required to satisfy stakeholder requirements and availability of external funding.	Ongoing program – currently mid way through 30 year strategy.	None – rolling program
Dam Safety Upgrade Program	Statement of Obligations pertaining to Dam Safety and to satisfy G-MW's Whole of Business Risk Management Framework. Program for individual projects has been based on ANCOLD Guidelines for life-safety tolerability limits combined with an assessment of economic risk of failure.	26.99	13.2%	Appropriate. Projects have been identified and scheduled over the duration of the Water Plan. Ongoing current projects and those planned for early delivery have well developed designs and cost estimates. Estimates for projects to be delivered late in the Water Plan period are based on preliminary designs and costs from similar projects.	Ongoing program. Nine major projects to be delivered over the duration of the Water Plan.	Limited
Reconfiguration Program	Water Savings – Securing our Water Future Together Part of G-MW's Water Recovery Savings package to deliver 25 GL of water savings to the environment by 2009. Restructuring of the delivery systems across all G-MW Irrigation Areas to improve viability and sustainability of the irrigation industry.	16.92	8.3%	Appropriate. Projects have been identified from G-MW's overall asset renewal/replacement program and compiled into a specific Reconfiguration Strategy for each Irrigation Area.	Ongoing program.	None – rolling program

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Mokoan – Return to Wetlands (Water Savings Program)	Water Savings – Securing our Water Future Together. In partnership with DSE and Goulburn Broken CMA to achieve 44 GL of water savings for return as environmental flows to the Broken, Goulburn, Murray and Snowy rivers. The overall project comprises a number of components including infrastructure to supply irrigation water to existing users, supply reliability offset measures, reintroduction of Lake Boga as part of a Mid Murray Storage system, as well as decommissioning of the Lake Mokoan infrastructure.	10.71	5.2%	Appropriate. Detailed planning and design has been completed for most of the components. Overall scope of the project is still to be finally determined, but a number of the components have already commenced.	Original timeframe was for water savings to be achieved by 2008/09 – however project has been delayed due to stakeholder objections resulting in probable overrun and possible changes in scope.	Limited
Diversions Metering Program	Water Savings and Compliance. In consultation with DSE, G-MW plans to meter groundwater entitlements greater than 20 ML and unregulated surface water entitlements greater than 10 ML. Also planned is a ten year project (2010/11 to 2019/20) to install remote monitoring technology to improve water compliance management.	9.81	4.8%	Preliminary.	Ongoing program. 1,890 sites to be metered by 2009 as part of Water Savings program – Securing our Water Future Together. 600 sites to be enhance in response to changes in Worksafe legislation by June 2013. Remote monitoring meter technology to be installed at 1,260 sites over the period 2010/11 to 2019/20.	None – rolling program

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Central Goulburn Irrigation Area Channel Remodelling Program	Replacement of assets at the end of their useful life.	6.57	3.2%	Appropriate.	Ongoing program.	None – rolling program
Torrumbarry Irrigation Area Channel Remodelling Program	Replacement of assets at the end of their useful life.	5.18	2.5%	Appropriate.	Ongoing program.	None – rolling program
Rochester Irrigation Area Culvert Program	Replacement of assets at the end of their useful life.	4.95	2.4%	Appropriate.	Ongoing program.	None – rolling program
Waranga Western Channel East & West Subway Program	Replacement of assets at the end of their useful life.	4.89	2.4%	Appropriate.	Ongoing program.	
Rochester Irrigation Area Channel Remodelling Program	Replacement of assets at the end of their useful life.	4.16	2.0%	Appropriate.	Ongoing program.	None – rolling program
TOTAL		118.19	57.8%			