In association with

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

Final Report

17 March 2008
Job No. 3106/44

Essential Services Commission

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Document Control

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FINAL	17 March 2008	Justin Edwards	JE	Ian Cartwright-Taylor	IRCT

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

FINAL REPORT

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EXECUTIVE SUMMARY

The final recommendations for Lower Murray Water's operating and capital expenditure forecasts for the second regulatory period are outlined in Table 1 and 2 respectively.

Table 1 Recommendations for Lower Murray Water's Operating Expenditure Forecasts

Business	Forecast	Operating Expenditure ($m, 01/01/07)				
		2008/09	2009/10	2010/11	2011/12	2012/13
Lower Murray Water (Urban)	Final Water Plan	17.48	16.94	16.62	16.91	17.31
	Cardno Revised	16.95	16.51	16.19	16.42	16.85
	Net Change	**-0.53**	**-0.43**	**-0.43**	**-0.49**	**-0.46**
Lower Murray Water (Rural)	Final Water Plan	11.76	11.98	11.21	11.40	11.57
	Cardno Revised	11.76	11.98	11.21	11.40	11.57
	Net Change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 2 Recommendations for Lower Murray Water's Capital Expenditure Forecasts

Business	Forecast	Capital Expenditure ($m, 01/01/07)				
		2008/09	2009/10	2010/11	2011/12	2012/13
Lower Murray Water (Urban)	Final Water Plan	27.14	7.47	8.05	6.36	8.38
	Cardno Revised	27.04	13.37	8.54	6.84	8.86
	Net Change	**-0.10**	**+5.9**	**+0.49**	**+0.48**	**+0.48**
Lower Murray Water (Rural)	Final Water Plan	22.76	2.97	13.73	20.00	1.81
	Cardno Revised	21.13	4.52	7.82	12.22	4.52
	Net Change	**-1.63**	**+1.55**	**-5.91**	**-7.78**	**+2.71**

Operating Expenditure Forecasts

Overall we conclude that the operating cost forecast estimates have been derived using a robust methodology based on detailed cost code information from Lower Murray Water's financial system. Assumptions underpinning the operating cost forecasts generally appear realistic, although a number of items included in the budget appear to be higher than we would have predicted, for example operating spend on consultants for ESC related activities and operating expenditure for IT. We have outlined these areas in more detail in the main body of the report.

LWM provided a formal written response to our draft report, in which they further explained additional opex to be incurred in 2008/13 in addition to the variations we had included in our draft report. We discussed these in more detail with the ESC, who provided us with details of the additional costs that they considered should be included in the proposed forecasts. Based on advice from the ESC, the only additional expenditure that LMW proposed in its formal written response to the Draft Report that has been included in the revised operating expenditure forecasts is the Merbein Renewals Annuity Phase Out. This has been included in explaining the variance between LMW's BAU Rural opex and the ESC's target BAU Rural opex.

Based on our analysis, LWM has provided acceptable explanations for the additional operating forecasts above the ESC's target opex for all five years of Urban opex and all five years of the Rural opex during 2008/13. For the forecasts for these years, LMW has demonstrated that it is achieving the 1% efficiency set by the ESC, with the additional expenditure being explained by a combination of new obligations, new and revised operating incentives, additional staff levels, cyclical maintenance that did not occur in the 2006/07 base year and the allowances calculated by the ESC for additional electricity increases and additional labour increases.

Lower Murray Water's Urban operating expenditure forecasts included permanent water rights of $553k/year, which based on discussions with the ESC we consider should be included as a capital cost and not an operating expense. In addition, Lower Murray Water has classed the future effluent reuse from the Koorlong WWTW augmentation project as a non-prescribed service. We consider that this is a prescribed service and that the associated costs and revenue should be included in Lower Murray Water's operating cost forecasts. The operating costs for the reuse have been estimated as $100k/year. The adjustments that have been made to LMW's Final Water Plan proposed Urban opex, as shown in Table 1, are largely as a result of these changes.

Capital Expenditure Forecasts

Although Lower Murray Water's Urban and Rural Capital program forecasts show an increase above historic levels this is largely as a result of a small number of large projects; the Koorlong WWTW project in the Urban forecasts ($13m for the augmentation of the plant and a further $5m for the recycling component) and the Robinvale and Merbein pipeline replacement projects in the Rural capex forecasts ($16.6m and $22m respectively).

Urban Capital Expenditure Forecasts

We consider that LMW is being over optimistic in programming the Koorlong WWTW augmentation all for 2008/09, with the Strategic Procurement Plan program expecting the contract to be awarded in October 2008 and although LMW consider that a 6 month construction period is achievable, the 2006 Business Case includes an 18 month construction period in its timetable. LMW considers that the construction phase will be much shorter if it can appoint a major contractor. However, we have recommended that the proposed expenditure be split over a two year period, 2008/09 and 2009/10.

In addition, although LMW considers that the Koorlong WWTW Recycling component is a non-prescribed activity, we consider that it is a prescribed service and, as a result, have included the $5m estimate in the regulatory capex forecasts. As with the main Koorlong WWTW augmentation project, we have recommended that the proposed expenditure be split over 2008/09 and 2009/10.

There is potential for moving the proposed 14th Street Tower Relocation ($2m) and associated trunk mains extension ($3m) out to third regulatory period, but at the present time we have recommended that both projects be left in the second regulatory period as they not due to start until 2011/12 and LMW's capital programs for these years is reasonably small.

We have revised the proposed expenditure on the capex proposed for new and replacement laptops and PCs, as the forecasts are slightly higher than we would have anticipated given LMW's predicted staff numbers through the second regulatory period.

We have included the proposed forecasts for permanent water rights, which we excluded from the opex, into the Urban capex forecasts.

Rural Capital Expenditure Forecasts

LMW has included a total forecast of $22m for the Merbein channel replacement project in its 2008/13 capital program, with the expenditure forecast to be incurred in 2010/11 and 2011/12. However, $11m of the total forecast is external funding and at the present time LMW has been unsuccessful in its first application for this funding. LMW has said that if it was unsuccessful with obtaining funding that it would still spend the $11m of its own money on upgrading the Merbein system. As a result, we have recommended that only $11m be included in the proposed capital expenditure forecast for 2008/13. We recommend that if

LMW is successful with its second application for external funding that it reopen discussions with the ESC to allow for the impact of the additional $11m on its pricing path.

We have recommended a smoothing of LMW's Rural capital program, based on the size of the program when the Robinvale and Merbein major projects are excluded. Historically, LMW has been able to successfully achieve an annual program of just under $4m. The five year program excluding Robinvale and Merbein ranges from $1.81m to $6.73m, with a five year average of $4.52m/year. Whilst this is a slightly simplistic adjustment, with LMW's program being derived from a risk based prioritisation approach, with a detailed program and project planning, this is closer to what LMW has been able to achieve historically and we have recommended that LMW look to revise its program to a more achievable level for each year in the second regulatory 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 Lower 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 Lower 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 Lower 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.

A draft report, submitted to the ESC on 18 January 2008, presents the preliminary comments and recommendations based on a detailed assessment of the forecasts, including a series of structured interviews at Lower Murray Water, where the assumptions and bases used to derive the forecast expenditures were discussed in depth.

The draft report was made available to Lower Murray Water by the ESC. They have provided a written response to the draft report to comment on the findings and recommendations that had been made, clarify any outstanding issues, and correct factual errors and any misinterpretations.

Comments received from the water business on the draft report have been used to prepare this Final Report.

2. EXPENDITURE REVIEW METHODOLOGY

Our approach to reviewing Lower 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 Lower 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 Lower 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 Lower Murray Water staff. In particular the detailed review stage involved:

- A more in depth review of the key aspects of Lower 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 Lower 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 are outlined in a Draft Report, dated 18 January 2008. This report was made available to Lower Murray Water for their comments and feedback, with this information being used to prepare this Final Report, dated 17 March 2008.

3. LOWER MURRAY WATER

Lower Murray Water was created under the provisions of the Water Act 1989 via an Order in Council effective 1st of July 2004 from the merger the of Lower Murray Region Water Authority (Urban Water) and Sunraysia Rural Water Authority (Rural Water).

Although it has submitted a single Water Plan, the document is split into two distinct sections, one covering the urban business and one covering the rural business. Similarly, the expenditure forecast templates provided to us by the ESC have been split out into forecasts for each of the urban and rural parts of Lower Murray Water's business. As such, we have reviewed and reported on the urban and rural expenditure forecasts separately, whilst taking into account the overall corporate management and assumptions used to split some of the operating costs out between the urban and rural businesses.

The Lower Murray Urban expenditure forecasts are discussed in Section 4 of this report, and the Lower Murray Rural expenditure forecasts are discussed in Section 5.

4. LOWER MURRAY WATER – URBAN

4.1 Operating Expenditure

A summary of Lower Murray Water's Urban water business historical and forecast operating expenditure, as included in the ESC's original information template submitted with Lower Murray Water's Water Plan is shown in Table 4-1.

Table 4-1 Lower Murray Water's (Urban) Historical and Forecast Operating Expenditure

Item	First Regulatory Period			Second Regulatory Period				
	Financial Year Opex ($m, 01/01/07)							
	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Operating Expenditure Summary								
Business As Usual Opex	15.46	15.60	13.93	15.89	15.45	15.23	15.52	15.91
Bulk Water Charges	0.42	0.40	0.45	0.45	0.45	0.45	0.45	0.45
Licence Fees	0.09	0.12	0.13	0.12	0.12	0.12	0.12	0.13
Environmental Levy	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Total Prescribed BAU Opex	16.77	16.92	15.31	17.26	16.82	16.60	16.89	17.29
New Obligations	-	-	-	0.22	0.12	0.02	0.02	0.02
Total Operating Expenditure	**16.77**	**16.92**	**15.31**	**17.48**	**16.94**	**16.62**	**16.91**	**17.31**

4.1.1 General and Key Issues

- In its Water Plan, LMW forecast opex to be fairly stable over the second regulatory period. Business As Usual opex forecast to decrease by 11% between 2006/07 and 2007/08 before a 13.6% increase in 2008/09. The Business As Usual opex is then forecast to decrease during Years 2 and 3 before increasing again in Years 4 and 5. The decrease from the actual 2006/07 spend and the budget for 2007/08 is as a result of LMW implementing a 'survival' budget, with non-essential non-capital maintenance deferred in anticipation of the drought ending.
- Operating expenditure for maintenance activities has been based on historic data. LMW's asset management system and costing system are interfaced, allowing LMW to assess historical data and the projected work on a 10 year horizon.
- For specific maintenance, LMW has work history data for the Urban area going back to 2000 and the associated work order cost data for this going back to 2004. For the Rural side of the business, LMW has work history and the associated cost information only going back to 2005.
- As LMW has a 10 year maintenance program in place there are some maintenance activities which are carried out on a cyclic rolling program which did not take place in the first regulatory period and only occur in specific years in the second period. As a result of maintenance projects such as these, by initial observation, the maintenance spend in the second period looks to be inconsistent, although this is not the case.
- LMW's finance system has individual cost codes for each of its sites and each of the functions and activities carried out within each site. Each site, whether water supply, sewerage, irrigation or reticulation has its own budget. LWM produces a monthly opex report of costs allocated to each of the cost codes and reports this against the budgets for each site.

- Growth is a main driver in the future forecasts made by LMW. Historic analysis of the last few years has shown that the population supplied by LMW has increased by about 400 each year. This rate has been assumed to continue into the future, although it is hard to ascertain whether this will be the case if the drought continues. Although population growth has been forecast, demand forecasts are fairly flat due to the increasing impact of LMW's demand management activities. The current year shows a reduced consumption due to the introduction of Stage 4 restrictions.
- Corporate operating expenditure is split between the urban and rural sides of LMW's business based on a 60 urban:40 rural ratio. This was based on analysis of the pre-merged urban and rural businesses. The urban expenditure is spilt out to the water supply and wastewater services based on the number of assessments. The rural corporate expenditure is split out to each of the different irrigation districts based on the number of customers in each district.
- There are two new obligations for the second regulatory period, but these are fairly minor activities. The new obligations are Mandatory Water Management Plans for Non-Residential Customers, for which LMW has budgeted $200,000 in 2008/09 and a further $100,000 in 2009/10 as '*priority initiatives to maximise water savings and capitalise on the initial momentum from businesses in developing their waterMAPS'* (LMW have 65 customers using 10ML or more annually who need to complete these Management Plans) and End Use Demand Modelling, for which $100,000 has been allocated to model and set water conservation targets for in-house use.

4.1.2 Review of LMW's General Ledger Budget 2008-13

LMW has used detailed analysis of the expenditure against its different cost codes reported in its General Ledger to derive the opex forecasts for the second regulatory period. Total expenditure has been split between the urban and rural sides of the business based on the specific spend in the different areas that can be separated out or by using the general assumptions. We reviewed the General Ledger Budget Review 2008-13 spreadsheet in detail and made the following observations for the opex forecasts for the Urban business.

- LMW has included a contingency of $200,000 in each year of the forecast. It has included this estimate in the general ledger, although the historic information shows this as zero as it is moved to other ledgers when it is spent. LMW has budgeted a contingency of $80,000 for 2007/08 as part of its 'survival' budget, although it increases to $200,000 for 2008/09.
- LMW currently has three different electricity contracts in place; one contract with AGL for its urban system, one with Power Direct for its <160 ML/year rural sites and one with Country Energy for its >160 ML/year rural sites. It is expected that the first two contacts will roll into one contract during 2008. The contract for the >160 ML/year rural sites is due for renewal at the start of the 2009/10 financial year. It is expected that eventually all three of the current contracts will end up as one contract. Contract negotiation is undertaken by a consultant on behalf of LMW in order to get the business the best deal.
- The forecasts included in the Water Plan for electricity usage during the second regulatory period were based on advice provided to LMW by the ESC to allow an increase of 30% over the period. However, in discussions with the ESC they have said that they did not provide this guidance. After the draft expenditure forecast review report was submitted, the ESC provided more information and has derived an allowance for electricity increases. These allowances have been included in the adjusted final revisions to LMW's Urban and Rural operating expenditure forecasts.

- LMW has looking to move to green power at the start of 2008/09. It put together a report detailing the impact on of green power on customer charges and received unanimous support for a switch from its customers.
- LMW has calculated the cost increases related to purchasing green power. It has included a total of $1.565m in its Water Plan for the period 2008/13. This total has been derived from the calculated increase that will be incurred from a 100% move from black power to green power. This has been calculated as an additional cost to LMW of $0.25m for the Urban water supply and an additional $0.087m/year for the Urban sewerage service, a total of $0.313 in each year of the second period. The costs have been derived using the electricity consumption for 2005/06 and using an additional rate for green power over the price of black power of 3.637 cents/kWh.
- Wage increases in the opex forecasts are based on LMW's Enterprise Bargaining Agreement, with an increase of 1.5% above CPI. The current EBA runs until 2009/10, with the future forecasts based on the current rates. Further increases are based on assumed movement of staff to high grade levels. LWM has included for an extra six members of full time staff during the second regulatory period; a Planning Engineer, Electrical Engineer and Maintenance Engineer that it expects to recruit during 2008/09 and three trainees, with one trainee per year being recruited over the first three years of the second period. In addition, it is planning to recruit a part time Revenue Officer in 2008/09 and a Water Trading Administration Assistant in 2009/10.
- The increased automation of the irrigation systems, as included in LMW's rural capital program, is forecast to result in redundancies from the Operations Room.
- LMW has forecast a considerable expenditure on 'Essential Services Commission' costs during the second regulatory period. The majority of the historic spend and the forecast is allocated to 'Consultants', with the majority of the remainder allocated to 'Internal Labour' and the associated on-costs.
- The spend for 'Consultants' recorded against the General Ledger item of 'Essential Services Commission' for the Urban business has been forecast to be $3,000 for the first three years of the second period, rising to $210,000 in 2011/12 and $90,000 for 2012/13. LMW has included the increases towards the end of the period for preparation of the next Water Plan. For the last two years of the second regulatory period, LWM has also included $140,000 and $60,000 for the preparation of the next rural Water Plan, with the $2,000 forecast for the first three years of the period. The proposed expenditure on ESC related work allocated to the Urban business, including the breakdown of 'Consultants' and 'Internal Labour' for the 2008-13 period, is provided in the following table.

Table 4-2 Lower Murray Water's Proposed Urban Spend on ESC-Related Activities

	2008/09 ($)	2009/10 ($)	2010/11 ($)	2011/12 ($)	2012/13 ($)	Regulatory Period Total ($)
ESC- Consultants	3,000	3,000	3,000	210,000	90,000	309,000
ESC –Internal Labour (including on-costs)	1,760	1,760	1,760	44,400	22,200	71,928
ESC – Other costs	1,200	1,200	1,200	1,500	1,500	6,600
ESC – Licence Fees	21,600	21,600	21,600	21,600	30,600	117,000
Total ESC Costs	**27,576**	**27,576**	**27,576**	**277,500**	**144,300**	**504,528**

LWM provided us details from its General Ledger for the actual historic expenditure for all the sub-codes related to the main 'Essential Services Commission' cost code going back to 2003/04. The costs include the costs for the ESC's regulatory audit. The expenditure related to 'Essential Services Commission' is provided in the following table.

Table 4-3 Lower Murray Water's Historical Urban Spend on ESC-Related Activities

	2003/04 actual ($)	2004/05 actual ($)	2005/06 actual ($)	2006/07 actual ($)	2007/08 budget ($)	Total ($)
Urban ESC Costs (60%)	33,000	151,800	170,400	197,440	139,560	**692,200**
Rural ESC Costs	22,000	101,200	113,600	186,560	93,040	**516,400**
Total ESC Costs	**55,000**	**253,000**	**284,000**	**384,000**	**232,600**	**1,208,600**

The expenditure incurred for 2003/04 to 2006/07 is the actual spend, with that for 2007/08 the budget for the final year of the first regulatory period. The split between the Urban and Rural spends has been derived based on a 60:40 split with the exception of the 2006/07 data, where the split is closer to 52:48.

We note that the 2003/08 actual/budget for Urban ESC costs exceeds the five year forecast for the second regulatory period.

In the previous review of LMW's expenditure forecasts, SKM considered that the proposed total budget for 2006/07 and 2007/08 of $0.72m for the preparation of the current Urban and Rural Water Plan was high, and suggested a revised total of $0.26m, with a further $0.06m for a single regulatory audit during the first regulatory period. Although LWM have exceeded SKM's suggested expenditure in the first year, with the combined Urban and Rural spend, and is expected to have spent more than double what was suggested by the end of the second year, the costs incurred by LMW do seem high for the work that would be expected to be involved in preparing the Water Plan. In particular, the costs forecast to be spent on consultants appear high, as we would expect much of the information included in the Water Plan to have come from the normal work activities of LMW's own staff. LMW noted that due to industry skill shortages there has been a significant increase in the rates for its consultants. It also noted that it engaged a consultant to assess the price elasticity of future water demand.

The historical spend on activities allocated to the Urban ESC totals $337,000 for 2006/07 and 2007/08. For the last two years of the second period (2011/12 and 2012/13), with the forecasts for these years relating predominantly to preparing the next Water Plan, the total forecast Urban ESC related expenditure is $421,800. This is 20% higher than the forecast cost of preparing the 2008/13 Water Plan and at the present time we can see no reason why the costs for the next Water Plan should be more than one recently submitted to the ESC. Therefore, we consider that the forecast for the ESC-related cost codes should be reduced by 20% for 2011/12 and 2012/13 to $222,000 and $111,600 respectively.

- Bulk Water Charges of $450k/year have been included in the Water Plan based on LMW's current entitlements and an estimate of the increased charges it is expecting to have to pay to Goulburn-Murray Water (GM-W). At the time that the Water Plan was prepared, LMW had not had any information provided by G-MW and noted that it would have to review the details included in G-MW's Water plan as to the level of charges it was planning to implement for the 2008/13 period. The Bulk Water Charges are a straight through cost, with LMW charging its customers whatever GM-W charges it.
- LMW has included its forecast provisions for Permanent Water Rights in its opex forecasts used to derive the Water Plan information. The ESC considers that these are assets and, therefore, should be capitalised and included in the capex forecasts. LWM has included a total of $553,000 in each year of the 2008/13 period and based on the ESC's advice we have moved this from the opex to the capex forecast in our recommended revisions to the opex spend over the period.

- Water Business As Usual opex forecasts show a 60% increase in Customer Service and Billing activities from 2006/07 to 2007/08, with a further 20% increase to 2008/09 and smaller increases to the end of the Period. Sewerage Business As Usual opex forecasts in Customer Service and Billing increases of 40% and 24% for 2007/08 and 2008/09. However, these apparent increases have been as a result of reallocating the areas where the customer service and billing was previously reported, and the forecasts for Customer Service and Billing activities are at similar levels to the historical expenditure. The billing expenditure was previously allocated within the Administration cost codes.

- Urban pumping costs are forecast to increase at the start of the second regulatory period before reducing throughout the rest of the period. The Urban Pumping cost code includes expenditure related to electricity, chemicals, materials, non-capital maintenance plant hire, labour costs and other minor costs associated with urban pumping. The historical actual spend and the future forecasts are as below:

Table 4-4 Lower Murray Water's Historic and Forecast Expenditure on Urban Pumping

	2005/06 actual ($m)	2006/07 actual ($m)	2007/08 budget ($m)	2008/09 forecast ($m)	2009/10 forecast ($m)	2010/11 forecast ($m)	2011/12 forecast ($m)	2012/13 forecast ($m)
Urban Pumping	1.559	1.546	1.362	1.984	1.880	1.757	1.729	1.775

There has been a reduction over the last couple of years as a result of reducing consumption due to the drought.

- The large increase from the budget for 2007/08 to that for 2008/09 is also explained by a number of maintenance activities that LMW has planned for 2008/09, including cyclic air scouring activities which LMW carries out every four years in each of its Urban water supply areas. LMW's Urban water and wastewater maintenance programs shows a $242,000 increase in specific maintenance activities from 2007/08 to 2008/09, followed by a decrease in the forecast spend in each of the next 3 years, before another increase in 2012/13. Historical actual spend on maintenance activities going back to 2000/01 shows that because of the cyclic nature of some of this expenditure, the spend profile is different in each year, with a larger spend having been incurred every two to three years. The predicted spend for specific maintenance activities for 2008/09 is higher than it has been in any of the recent years although this has been balanced out to a degree by a lower budget in 2007/08 from that incurred over all but one of the preceding five years, due to LMW's 'survival' budget and the deferment of non-essential maintenance.
- Forecast costs related to Urban filtration included in LMW's budget shows an increase in the second period from the 2007/08 budget and the 2006/07 actual spend but not dissimilar to the actual expenditure incurred in 2005/06. Costs have reduced over the last couple of years due to the drought and the reduction in Urban consumption.
- Similar to the costs related to Urban Pumping, the budget for Urban Storage is forecast to increase significantly in the first year of the second period from the budget allocated to it for 2007/08; the 2007/08 budget is $92,250 and the 2008/09 budget has been forecast as $223,955. As previously noted, LMW has implemented a 'survival' budget for 2007/08 and has deferred non-essential maintenance.
- Wastewater treatment opex costs included in LMW's forecasts shows a significant increase from the 2007/08 budget to the estimate for 2008/09, with a further increase forecast for 2009/10. The historical actual spend and the future forecasts are as below:

Table 4-5 Lower Murray Water's Historical and Forecast Expenditure on Urban Treatment

	2005/06 actual ($m)	2006/07 actual ($m)	2007/08 budget ($m)	2008/09 forecast ($m)	2009/10 forecast ($m)	2010/11 forecast ($m)	2011/12 forecast ($m)	2012/13 forecast ($m)
Urban Treatment	0.604	0.616	0.582	0.741	0.819	0.789	0.907	0.790

The increases in 2008/09 and 2011/12 include higher costs to be incurred from LMW's specific maintenance program.

In addition, the increase in the 2009/10 also includes the increased costs from the upgraded Koorlong WWTW. The breakdown of the operations, routine and specific maintenance actual historic spend and LMW's forecasts for 2008/13 are as follows:

Table 4-6 Lower Murray Water's Historical and Forecast Expenditure for the Koorlong WWTW

	2005/06 actual ($m)	2006/07 actual ($m)	2007/08 budget ($m)	2008/09 forecast ($m)	2009/10 forecast ($m)	2010/11 forecast ($m)	2011/12 forecast ($m)	2012/13 forecast ($m)
Koorlong WWTW	0.236	0.217	0.206	0.305	0.410	0.410	0.410	0.410

Although the augmentation work is not due to be completed until towards the end of 2008/09 at earliest (based on LMW's estimate) and more likely towards the end of 2009 (based on Hunter Water's latest procurement plan), LMW has forecast an increase in 2008/09. However, the breakdown of the historical expenditure data shows that the totals for 2005/06 to the 2007/08 budget do not include any provision for maintenance, which had not been allocated specifically to the site itself but had been included elsewhere in previous budgets. Therefore, the forecast for 2008/09 includes provision for $50,000 of maintenance.

- Although the augmented Koorlong WWTW is to take effluent currently treated at the Red Cliffs WWTW, resulting in the Red Cliffs site being decommissioned, LMW has forecast that expenditure will continue to be incurred for treatment at the Red Cliffs WWTW post-2010 when the site is decommissioned. It has forecast a spend of $30,000/year for the rest of the period, compared to an historical actual cost in the region of $55,000/year. The post-2010 forecast is made up predominantly of Operations and Routine Maintenance related to the headworks of the treatment works.
- Actual spend related to Grounds Maintenance activities has been in the order of $80,000 – $90,000 over the last few years. LMW has forecast an increase from the 2007/08 budget of $80,000 to an annual spend of $130,000/year through the whole of the second regulatory period. LWM has said that the additional expenditure is required to cover new assets going forward and because actual costs for ongoing maintenance have been lower than normal in recent years due to slow growth associated with the drought. In forecasting a return to normal conditions, LWM is expecting this expenditure to increase. All of LMW's forecast for Grounds Maintenance has been allocated to the Urban business.
- LMW has budgeted $150,000 in each of the first three years of the second regulatory period and $100,000 in the last two years for 'Safety Upgrade'. It has included this spend for the yearly OH&S safety audits. This is moved at the end of the year from the General Ledger to the other ledgers, explaining why the historical expenditure information shows that there has been no spend against the specific cost code.
- LMW's budget forecasts for 2008/13 show a large increase in the spend for the Emergency Management Plan. Historic spend from the General Ledger show a very small spend on the Emergency Management Plan totalling less than $20,000

in the last two years. LMW has increased this in the 2007/08 budget to $90,000 ($70,000 allocated to the Urban business and $20,000 to the Rural business) increasing to $95,000 in each year of the second regulatory period ($70,000 for the Urban business, $25,000 to the Rural business). LMW noted that the expenditure was required to improve the current plan, with it being used to engage consultants to review and aid in revising the plan as well as for carrying out emergency exercises to test the Emergency Plan.

- LMW's budget forecasts for 2008/13 also show a large increase in the spend related to Information Technology, with the budget for 2007/08 also showing an increase on the actual spend in 2006/07. The breakdown of the actual historical spend and LMW's forecasts for 2008/13 for Urban Information Technology opex are as follows:

Table 4-7 Lower Murray Water's Historical and Forecast Expenditure on Urban Information Technology

	2005/06 actual ($m)	2006/07 actual ($m)	2007/08 budget ($m)	2008/09 forecast ($m)	2009/10 forecast ($m)	2010/11 forecast ($m)	2011/12 forecast ($m)	2012/13 forecast ($m)
Information Technology	0.418	0.450	0.633	0.692	0.702	0.705	0.708	0.711

The 2006/07 to 2007/08 increase in partly explained by an additional member of staff being recruited to this area of operations. The other main increase in the forecast is due to an increase in the expenditure allocated to Software Annual Licences. The breakdown of the actual historic spend and LMW's forecasts for 2008/13 for Urban Software Annual Licences are as follows:

Table 4-8 Lower Murray Water's Historical and Forecast Expenditure on Urban Software Annual Licences

	2005/06 actual ($m)	2006/07 actual ($m)	2007/08 budget ($m)	2008/09 forecast ($m)	2009/10 forecast ($m)	2010/11 forecast ($m)	2011/12 forecast ($m)	2012/13 forecast ($m)
Software Annual Licences	0.100	0.177	0.283	0.324	0.324	0.324	0.324	0.324

LWM has said that the increase in the spend on Software Annual Licences is due to an internal audit of licence requirements and also a change in the cost codes used to record this expenditure, with the costs being centralised instead of the previous system where some spend was recorded within the opex for particular groups within the business. The General Ledger shows that in the region of $60,000/year has been reallocated from software licence spend in other areas to the centralised cost code.

LMW has also entered into a Hardware Maintenance Contract which is contributing an additional $25 – 28,000/year from 2007/08 to the overall budget.

- We confirmed that estimated budgets for the disposal of assets have been netted off LMW's estimated operating budgets.

4.1.3 Recommendations

- Overall we consider that the operating cost forecast estimates have been derived using a well developed and robust methodology based on detailed cost code information from Lower Murray Water's financial system. Assumptions underpinning the operating cost forecasts generally appear realistic, although a number of items included in the budget appear to be higher than we would have predicted and higher than the historical spend would have suggested, for example operating spend on consultants for ESC related activities.

- LMW has included its forecast provisions for Permanent Water Rights in its opex forecasts used to derive the Water Plan information. The ESC considers that these are assets and, therefore, should be capitalised and included in the capex forecasts. LMW's disagrees with this view as it considers that although it gets a return on the water it does not get a return off the water rights as there is no associated regulatory depreciation for these assets. LWM has included a total of $553,000 in each year of the 2008/13 period and based on the ESC's advice we have moved this from the opex to the capex forecast in our recommended revisions to the opex spend over the period. We note that for 2005/06 and 2006/07, LWM spent $0.67m and $1.67m respectively on permanent water purchases and has budgeted a further $0.84m for 2007/08. LMW will need to reforecast their opening capital balance to take account of the reallocated permanent water rights.

- In addition, Lower Murray Water has classed the future effluent reuse from the Koorlong WWTW augmentation project as a non-prescribed service. We consider that this is a prescribed service and that the associated costs and revenue should be included in Lower Murray Water's operating cost forecasts. The operating costs for the reuse have been estimated as $100k/year from 2009/10 to the end of the second regulatory period.

- The historical spend on activities related to the Urban ESC totals $337,000 for 2006/07 and 2007/08. For the last two years of the second period (2011/12 and 2012/13), with the forecasts for these years relating predominantly to preparing the next Water Plan, the total forecast expenditure is $421,800. This is 25% higher than the forecast cost of preparing the 2008/13 Water Plan and at the present time we can see no reason why the costs for the next Water Plan should be more than one recently submitted to the ESC. Therefore, we consider that the forecast for the ESC-related cost codes should be reduced by 20% for 2011/12 and 2012/13 to $222,000 and $111,600 respectively.

- LMW has included reductions in labour and operating costs where there is forecast to be a change from increased automation, upgrades of infrastructure and decommissioning of key assets within its operating expenditure forecasts.

- The ESC has provided a breakdown of the forecast operating expenditure in which they have calculated a target Business As Usual opex, based on a 2006/07 base year Business As Usual operating expenditure. The difference between LMW's Business As Usual opex and the ESC's target BAU opex has been calculated for each year to provide a variance from the target opex.

  After the Draft Report was submitted, the ESC provided additional analysis which allowed for additional electricity increases and additional labour increases, providing a consistent approach across all of the Victorian water businesses. This resulted in revised target BAU expenditure for each of the five years.

  The original and revised BAU targets, taking account of the ESC's allowances for additional labour and electricity costs, and the resultant revised variance from the revised target opex are provided in Table 4-9.

Table 4-9 Lower Murray Water's Proposed BAU Opex and Variance from the ESC's Revised Target BAU Opex

	2008/09 ($m)	2009/10 ($m)	2010/11 ($m)	2011/12 ($m)	2012/13 ($m)	Regulatory Period Total ($m)
LWM Urban BAU Opex (excluding the reallocated permanent water purchases	15.56	15.02	14.70	14.99	15.38	75.64
ESC Original Target Urban BAU Opex	14.02	14.05	14.08	14.11	14.14	70.40

	2008/09 ($m)	2009/10 ($m)	2010/11 ($m)	2011/12 ($m)	2012/13 ($m)	Regulatory Period Total ($m)
ESC Allowance for Additional Labour Increases	0.14	0.22	0.29	0.36	0.44	1.45
ESC Allowance for Additional Electricity Increases	0.12	0.15	0.12	0.12	0.12	**0.63**
ESC Revised Target Urban BAU Opex	14.28	14.41	14.49	14.60	14.70	**72.49**
ESC Revised Variance from Target Urban BAU Opex	1.27	0.60	0.20	0.40	0.68	**3.15**

Based on our analysis of LMW's breakdown of operating expenditure forecasts, we consider that of the total additional Urban BAU opex of $3.15m over the second regulatory period, $6.16m has been acceptably explained by LMW. The acceptable additional opex relates to the proposed expenditure on a combination of new obligations, new and revised operating incentives, additional staff levels, cyclical maintenance that did not occur in the 2006/07 base year.

The breakdown and totals for the explained and accepted additional Urban opex costs are provided in Table 4-10.

Table 4-10 Lower Murray Water's Explained Additional Operating Expenses during 2008/13

	2008-09 ($m)	2009-10 ($m)	2010-11 ($m)	2011-12 ($m)	2012-13 ($m)	TOTAL ($m)	NPV ($m)
Additional Urban staff costs	0.230	0.274	0.317	0.317	0.317	**1.455**	**1.251**
Green Power additional opex	0.313	0.313	0.313	0.313	0.313	**1.565**	**1.351**
End use demand modelling	0.020	0.020	0.020	0.020	0.020	**0.100**	**0.086**
Industry Water Conservation Plans (WaterMaps)	0.200	0.100	-	-	-	**0.300**	**0.281**
Additional opex for the augmented Koorlong WWTW	-	-	0.200	0.200	0.200	**0.600**	**0.544**
Cyclical Maintenance	0.50	0.07	0.07	0.22	0.42	**1.28**	**1.107**
Emergency Management Plan	0.02	0.02	0.02	0.02	0.02	**0.10**	**0.086**
Biodiversity Strategy Plan	0.15	0.15	0.15	0.15	0.15	**0.75**	**0.648**
TOTAL	**1.43**	**0.94**	**1.09**	**1.24**	**1.44**	**6.16**	**5.303**

The additional operating expenses that LWM has forecast for its Urban business are higher than the ESC-derived variation from the target BAU opex and demonstrate that LMW is achieving the ESC's required 1% p.a. efficiency target

- Therefore, our recommended changes to Lower Murray Water's regulatory Urban operating expenditure forecast are as follows:

Table 4-11 Recommended Changes to Lower Murray Water's Urban Operating Expenditure for Regulatory Purposes

			$m				
Item	**Item/Description**		**2008/09**	**2009/10**	**2010/11**	**2011/12**	**2012/13**
1	Permanent Water Rights	Original Water Plan Forecast	0.53	0.53	0.53	0.53	0.53
		Recommended Revised Forecast	0	0	0	0	0
		Recommended Net Change	-0.53	-0.53	-0.53	-0.53	-0.53
2	Koorlong Reuse Opex	Original Water Plan Forecast	0	0	0	0	0
		Recommended Revised Forecast	0	0.1	0.1	0.1	0.1
		Recommended Net Change	0	+0.1	+0.1	+0.1	+0.1
3	ESC Related Spend	Original Water Plan Forecast	0.03	0.03	0.03	0.28	0.14
		Recommended Revised Forecast	0.03	0.03	0.03	0.21	0.11
		Recommended Net Change	0	0	0	-0.06	-0.03
Total Recommended Net Change:			-0.53	-0.43	-0.43	-0.49	-0.46
Original Water Plan Total Regulatory Opex:			17.48	16.94	16.62	16.91	17.31
Recommended Revised Total Regulatory Opex:			**16.95**	**16.51**	**16.19**	**16.42**	**16.85**
% Change:			-3.0%	-2.5%	-2.6%	-2.9%	-2.7%

4.2 Capital Expenditure

A summary of Lower Murray Water's Urban water business historical and forecast capital expenditure, as included in the ESC's information template is shown in Table 4-12.

Table 4-12 Lower Murray Water (Urban) Historical and Forecast Capital Expenditure

Item	First Regulatory Period			Second Regulatory Period				
	Financial Year Capex ($m, 01/01/07)							
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Water Headworks	0.00	0.40	0.71	0.00	0.30	0.00	0.05	0.00
Water Treatment	3.92	3.34	2.01	1.05	2.43	2.01	0.67	0.40
Water Network	2.49	1.48	1.90	0.77	1.24	0.92	2.69	4.63
Water Sub-Total	**6.41**	**5.23**	**4.62**	**1.82**	**3.97**	**2.93**	**3.41**	**5.03**
Sewerage Treatment	0.55	0.63	1.83	19.30	0.86	0.47	0.29	1.10
Sewerage Network	2.29	1.70	1.31	4.81	2.00	1.88	1.90	1.60
Sewerage Sub-Total	**2.84**	**2.33**	**3.14**	**24.11**	**2.86**	**2.35**	**2.19**	**2.70**
Recycled Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Corporate	1.11	1.33	1.16	1.23	0.63	2.77	0.77	0.65
Total Business As Usual	**10.36**	**8.89**	**8.92**	**27.14**	**7.47**	**8.05**	**6.36**	**8.38**
Unregulated	-	-	-	5.00	-	-	-	-
New Obligations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (Whole of Business)	**10.36**	**8.89**	**8.92**	**32.14**	**7.47**	**8.05**	**6.36**	**8.38**
Total (Regulated)	**10.36**	**8.89**	**8.92**	**27.14**	**7.47**	**8.05**	**6.36**	**8.38**

Since submitting the Urban capital expenditure data to the ESC for inclusion in its templates, LMW has slightly revised the forecasts for 2008/09 and 2009/10. The $0.25m Nardoo Street Rising Main Replacement Project was originally incorrectly included in 2008/09 instead of 2009/10. As a result the corrected totals for the regulated business for 2008/09 and 2009/10 should be $26.89m and $7.71m respectively.

4.2.1 General and Key Issues

- The urban investment profile in the next period is variable with the projects delayed from the first period (Koorlong WWTP) being programmed for the first year, 2008/09. As a result, capex is forecast to increase from $8.92m in 2007/08 to $27m in 2008/09, before decreasing to approximately $8m p.a. for the rest of the period.
- Planned capex spend has shifted out as a result of the drought, with the 2007/08 capital budget changing from what had been included in the Water Plan. Additionally, some spend proposed for programmed maintenance has been delayed in the program, with LMW using a risk based approach to delay programmed maintenance that it considers will not increase the risks significantly.
- LMW are looking to align construction of some of its proposed capital projects to be able to package up the projects and make the projects more attractive to prospective contractors. It has experienced issues over the last few years in getting interest from contractors in its capital program.
- Additionally, LMW has experienced issues with consultants to undertake detailed design for the capital program in recent years, with the consultants not having sufficient capacity to undertake the work, leading to issues in delivering LMW's capital program.
- Capex figures included in the Water Plan include contingencies of up to 15% based on LMW's experience with similar projects.

- The Water Plan notes that the timing of the $13m Koorlong WWTP to upgrade the plant from 4.5 ML/day to 8.5 ML/day is subject to EPA and other statutory approvals and 'may commence in 2007/08 if approvals are not delayed'. If not delayed, the upgrade will allow the Red Cliffs WWTP to be decommissioned in 2009/10, with the decommission work estimated at $2.1m.
- The $5m included in the Water Plan for the Koorlong WWTP Recycling project has been classified by LMW as a non-prescribed service *'…as it has been negotiated on a commercial basis and is not subsidised by the regulated business'*.
- The water mains replacement program is forecast to increases year-on-year throughout the period, from $450,000 in 2008/09 to $800,000 in 2012/13.
- There is a high level of uncertainty in the capital program in terms of projects that LMW have committed to. As a result of the Koorlong WWTP augmentation being delayed and making up the majority of the 2008/09 capex, the majority of capex in Year 1 has been committed to. For the remaining four years of the period, very little of the program has been committed to and, as such, the project cost estimates have a high degree of uncertainty. Projects included in the Water Plan only include a contingency up to 15% based on past experience. Projects become 'Committed' when there is full approval from the Board and Customer Committees to proceed with a specific project. Uncommitted projects included in the Water Plan have been included as they have been identified through LMW's Master Plan documentation. However, based on discussions with LMW it appears that the proposed expenditure on projects that have been committed to had not been updated in the Water Plan information. Although not all of the proposed major capex projects have been committed to, the replacement and renewals programs in the capex forecasts have been committed to.
- The proposed spend on corporate capex for 2009/13 has been forecast as a total of $9.509m over the five year period. Of this, $6.05m has been allocated to the Urban side of LMW's business. Where the corporate capex cannot be directly allocated to either the Urban or the Rural business it has been split 60:40 Urban:Rural and 90:10 Urban:Rural for IT hardware and software items. The $6.04m corporate capex allocated to the Urban business is 9.7% of the total Urban capex program. The proposed spend has been forecast by LMW to be partially offset by $2.4m received from sale of vehicles.
- Corporate capital expenditure for IT provisions is depreciated over 4 years for PCs and laptops and three years for other IT items. As a result of this policy, the expenditure on new PCs and laptops and replacement PCs and laptops is considered to be high. The forecasts for 2008/13 are as shown below:

Table 4-13 Lower Murray Water's Forecast Urban Expenditure on Laptops and PCs

	2008/09 ($)	2009/10 ($)	2010/11 ($)	2011/12 ($)	2012/13 ($)	Regulatory Period Total ($)
New PCs and Laptops	15,000	20,000	25,000	30,000	30,000	120,000
Replacement PCs (4 years)	50,000	50,000	60,000	60,000	60,000	280,000
Replacement Laptops (4 years)	20,000	20,000	20,000	25,000	25,000	110,000
Total	**85,000**	**90,000**	**105,000**	**115,000**	**115,000**	**510,000**

- Although LMW has forecast an increase in employees with an additional 8 employees over the period, there is a reduction in staff from the Operations Room as a result of increased automation.
- LMW has forecast a large capital spend on vehicles for 2008/13 in its Water Plan, although there is an error in Appendix D of the Rural Water Plan, with the total forecast spend on vehicles being reported instead of the proportion that has been

apportioned to the Rural business. The total forecast spend has been apportioned 60% Urban: 40% Rural. LMW's historical actual spend and its forecasts for 2008/09, as apportioned between the Urban and Rural are as shown below:

Table 4-14 Lower Murray Water's Historical and Forecast Expenditure on Vehicles

	2005/06 actual ($m)	2006/07 actual ($m)	2007/08 budget ($m)	2008/09 forecast ($m)	2009/10 forecast ($m)	2010/11 forecast ($m)	2011/12 forecast ($m)	2012/13 forecast ($m)
Urban (60%)	0.296	0.336	0.067	0.210	0.217	0.228	0.210	0.210
Rural (40%)	0.198	0.224	0.045	0.140	0.145	0.152	0.140	0.140
Vehicle Total	**0.494**	**0.560**	**0.112**	**0.350**	**0.362**	**0.380**	**0.350**	**0.350**

LMW has made the 2008/13 capex forecasts for vehicles based on the historical spend. LMW's policy is to replace cars after 4 years or 80,000 km and trucks after 5 years or 100,000 km. Its previous vehicle policy was to replace cars after 2 years or 40,000 km. Although by appearance the forecast spend looks significant, it is less than has been spent in recent years.

The business owns its vehicle fleet and recoups some of the expense back through the on selling of the vehicles when they are replaced. LMW has looked at a leasing a vehicle fleet previously and also a fleet management system but considered that the cost estimates did not justify changing the current set-up. However, it is planning to review this again, probably within the next six months, to look at reducing its debt levels and free up some of its revenue. Based on historical actual spend, LMW's forecasts for 2008/13 are reasonable.

4.2.2 Capital Planning Processes

- The initial list of capital projects is derived from LMW's Master Plan and Strategic Plan documents. The projects that are initially identified as being needed are developed further as the proposed timeframe for their requirement approaches. Major projects use an options analysis approach based on a triple bottom line analysis to develop a preferred option to take forward to the more detailed design and costing stages.
- Preliminary budgets for new capital projects are generally taken from Master Plan or Strategic Plan information. The costs included in the Water Plan have been inflated up to 2007 values.

4.2.3 Asset Management Systems and Processes

- The historical and forecast expenditure on urban renewals, excluding major asset replacements, is shown in Table 4-13. Forecast renewals expenditure during the second regulatory period totals $9.4m, which is approximately 16.4% of the total forecast urban capital expenditure over the five year period.

Table 4-15 Lower Murray Water (Urban) Historical and Forecast Capital Expenditure on Renewals and Replacements

Renewals/Replacements	First Regulatory Period			Second Regulatory Period				
	Financial Year Capex ($m, 01/01/07)							
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Mains Replacement	0.57	0.53	0.52	0.45	0.50	0.60	0.70	0.80
Minor Capex Replacement	0.17	0.12	0.21	0.25	0.25	0.25	0.25	0.25
SCADA Upgrades	-	0.16	0.03	-	-	-	-	-
Water Sub-Total	**0.74**	**0.81**	**0.76**	**0.70**	**0.75**	**0.85**	**0.95**	**1.05**

Renewals/Replacements	First Regulatory Period			Second Regulatory Period				
	Financial Year Capex ($m, 01/01/07)							
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Sewer Rehabilitation	0.71	0.12	0.02	0.70	0.70	0.80	0.80	0.80
Minor Capex Replacement	0.13	0.26	0.26	0.47	0.21	0.23	0.19	0.20
Sewerage Sub-Total	**0.84**	**0.36**	**0.28**	**1.17**	**0.91**	**1.03**	**0.99**	**1.00**
Total Urban Renewals	**1.58**	**1.17**	**1.04**	**1.87**	**1.66**	**1.88**	**1.94**	**2.05**

- LMW has well developed asset management systems and uses the Hansen asset management system together with its GIS system to derive its renewals and refurbishment programmes. Replacement requirements and timings have been based on GHD studies of LMW's assets.
- LMW's customer service system, Merit, is interfaced with Hansen. Service requests made through the Merit system result in work orders being generated in Hansen. Any work carried out on an asset has a work order generated for the work activity.
- The data supplied by LMW to the ESC showed an average life for LMW's urban asset base of 28 years. However, LMW uses typical asset lives for its assets and the low average age is due to an extensive period of asset replacement over the last 10 – 15 years.
- LMW's water mains renewals program is prioritised using a criticality scoring system. LMW has fault history for its water mains going back to 1997, including details of the faults on the pipes. However, the costs associated with the repairs and the cost/metre of replacement pipe have only been recorded since 2004. Having been scored using the criticality scoring system, the renewals are ranked based on practicality. The age of the pipe, where the age of the pipe is in relation to the total asset life and the remaining asset life are also taken into account in prioritising the work program for each year.
- The sewer mains rehabilitation work, as with the water mains replacements, is prioritised based on condition and criticality scorings. Sewer mains are generally relined as opposed to being replaced. The sewer rehabilitation program has been reassessed in the current year so that the work could be prioritised using a single scoring system. This has been carried out as the sewer condition and performance assessments that had been carried out previously have been scored using slightly different scoring systems.
- Usually LMW has one contract a year for its sewer rehabilitation work but combined the work planned for 2006/07 and 2007/08 into one year's worth of work so that it could tender to contractors for a better price for a larger package of work.
- For pump replacements the flow and electricity usage are analysed to assess pump efficiency and whether a reduction in efficiency requires a replacement of the pump. If maintenance costs are more than 55% of the replacement cost of a pump it is replaced.
- LWM is progressing to an Advanced Asset Management approach at present, with risk analysis and full life-cycle management now being included to develop future renewals programs. The first stage of the new system was implemented in May 2007.
- Currently LWM has five risk management registers; water quality, corporate, environmental, OHS and linear/criticality. Going forward, LWM are combining the separate registers but with the functionality to generate risk reports for any of the areas.

4.2.4 Major Urban Projects

Koorlong WWTW Augmentation

LMW has included $13m in 2008/09 for the upgrade of the Koorlong WWTW. All of the spend has been forecast for the single year. LMW has been working with Hunter Water, who have acted as Process Engineers on the project and have completed the feasibility, options reports and final design for the upgrade of the plant. LMW has used Patterson Brittan to review the options that Hunter Water derived. The final design review is due to be completed by the end of December 2007.

LMW expects to move to the Expressions of Interest (EOI) stage in January 2008 to derive an initial panel list of preferred contractors. It has already informally contacted seven contractors to discuss the project and has had some firm interest in the project and a number of contactors that are likely to be interested.

In discussions with LMW it seemed that the likely timeframe for the project would be that it hoped to have a contractor appointed by April/May, with the construction starting before the end of the 2007/08 financial year. There is still an element of the final design to be included in the tender to increase interest from contractors. LMW is allowing a period of 2 - 3 months for this small element of innovative design and will award the tender based on this as well as the overall proposed price for the project.

The original time estimates for the project, as included in the April 2006 Business Case, put the construction phase at 18 months. However, this has now been revised to 12 months, with LMW anticipating that if the project was awarded to a major contractor that the likely construction phase could potentially further reduce to a 6 – 8 month period. As a result of the preliminary informal discussions with a number of contractors and the initial interest shown in tendering for the project, LMW does not consider that there will any issues with finding and appointing a contractor. If there any problems it would expect to know before the draft determinations are made by the ESC.

The project is still subject to EPA approval, part of the reason why the project has been delayed from its original timeframe. The Environmental Impact Plan has been completed by GHD but needs to be reviewed and approved by the EPA. LMW has expected this to be completed by March 2008. The construction cannot start until it has been approved by the EPA.

Based on the interviews with LMW, the timeframe for the construction phase to start by the end of the 2007/08 financial year seems ambitious and tight. However, the latest project documentation on the project is the Strategic Procurement Plan prepared by Hunter Water which moves the timeframe back, with the Request for Tenders proposed for June 2008, with the preferred tenderer announced in August 2008 and the contract awarded in October 2008.

This delayed program would appear to be a more achievable and likely timeframe to tender the project over and ensure that EPA approval is granted, but would result in the capital expenditure for the project likely to be split over 2008/09 and 2009/10 instead of the one year that LMW has proposed in its Water Plan.

Based on the information that was provided to us at audit we recommend that the expenditure for the project be split over a two year period, 2008/09 and 2009/10. Although the 2006 Business Case for the project included an 18 month construction phase, LMW now expects a 6 – 8 month construction phase, although this is largely dependent on a contract being awarded to a major contractor. An additional 3 month phase is expected for commissioning. Therefore, we would recommend that LMW assume an overall 12 month time for practical completion but split the proposed $13m on a 70:30 basis between the two years, $9.1m for 2008/09 and $3.9m for 2009/10.

Koorlong WWTW Augmentation- Recycled

LWM has included the forecasts $5m for the upgrade of the Koorlong WWTW to supply recycled water as non-prescribed. LMW's justification for including this as non-prescribed business is that it has gone out into the market and auctioned off the recycled water to the highest bidder. Advice from GHD also led to this result. LMW plans to hold further discussions with the ESC on this issue. However, based on our understanding and advice provided from the ESC we consider that the project should be categorised as prescribed. As a result of being included in the Water Plan as non-prescribed, there is operating expenditure and revenue that will have to be reallocated to the prescribed business forecasts. LMW's Water Plan includes the following forecasts related to this project:

Table 4-16 Lower Murray Water's Forecast Revenue and Operating Expenditure related to Koorlong WWTW Recycling Activities

	2008/09 ($m)	2009/10 ($m)	2010/11 ($m)	2011/12 ($m)	2012/13 ($m)	Regulatory Period Total ($m)
Recycled Water Revenue	0.2	0.6	0.6	0.6	0.6	2.60
Recycled Water Opex	0	0.1	0.1	0.1	0.1	0.4
Net Profit/(Loss)	0.2	0.5	0.5	0.5	0.5	2.20

We have allocated the expenditure back into our urban opex recommendations included in

Table 4-11.

As with the main Koorlong WWTW augmentation, we would recommend that the proposed forecast cost of $5m be split over two years instead of it all being planned on being incurred in 2008/09. We suggest the same split as recommended for the augmentation, 70:30 over the two years, meaning $3.5m in 2008/09 and $1.5m in 2009/10.

Red Cliffs WWTW Decommission

The Red Cliffs WWTW is in the region of 50 years old and additionally has not been meeting the required standard of reuse quality for treated effluent that has been used on a golf course. A condition assessment of the plant in 2003 concluded that the best approach would be to decommission the site and transfer the flows to the Koorlong WWTW.

The final design is expected to be completed by the end of December 2007. LMW consider that that it is a straightforward project, with the main component being an approximately 10km 225mm diameter pipeline to the upgraded Koorlong WWTW and, as such, it will probably look to local contractors to undertake the construction work.

The project is included in the Water Plan as a $1.8m expenditure in 2008/09 and a further $0.32m in 2009/10. The initial cost estimate included in the Report on Infrastructure Condition was $1.5m for the pipeline and $15,000 for the demolition of the existing works. The report noted that these costs did not include any ground remediation costs, which it estimated could be between $0.1m and $2m. However, if LMW plan to retain site control then no remediation work may be necessary.

Although the project involves connecting it up to the Koorlong WWTW, which is potentially going to be further delayed and not completed until towards the end of 2009, the impact on the timing of this project is not major as the pipeline can start at anytime. Final connection to the Koorlong WWTW and the final decommissioning of the Red Cliffs WWTW will depend on when the Koorlong augmentation is completed. However, we consider that the project is achievable in the timeframe that LMW has proposed.

Nichols Point Sewerage Scheme

LMW has included $1.326m in its Water Plan to be incurred all in 2008/09 for the Nichols Point first time sewerage scheme. This is not considered by LMW to be a viable project or one that it wanted to construct but it has been mandated. Project costs have been taken from the Concept Review and Options Analysis Report. The project is 40% funded by Government, with LMW making up the rest of the costs from its own reserves. LMW has carried out the planning and design work and has received formal approval from the Minister for Water to proceed with the project.

At the time of our Draft report, it was noted that there was a 3 – 4 month delay in the project. The 2007 Business Case for the project initially proposed the design phase to be finished by June 2008, with the construction proposed to start at the end of November 2008 and be completed by April 2009.

As the project has been scheduled towards the end of 2008/09 and as there is already a delay in the project, we recommended in our draft report that LMW split the forecast spend over 2008/09 and 2009/10. However, as ministerial approval has now been given LMW intends to commence the tender for construction to start in November 2008, the original start date in the Business Case, and expects the project to be completed in 2008/09. As a result we have revised our recommendation from that included in the Draft Report and have included all of the forecast expenditure in 2008/09 instead of splitting it over two years.

14th Street Tower Relocation

The relocation of the 14th Street Tower is still in LMW's capital program for the second regulatory period but whether or not the project goes ahead is largely dependent on demand and what happens when the area moves our of the current drought conditions.

There is also a trunk main system project associated with the relocation of the tower. Currently the project has been programmed in the Water Plan for 2012/13 but there is uncertainty whether or not the project will occur in the 2008 - 13 timeframe at present. The estimate for the project is $2m.

Mildura Trunk Mains Extension
LMW has included a total of $3m, $1.5m in each of 2011/12 and 2012/13 for mains extensions related to the relocation of the 14th Street Tower. However, as there is uncertainty as to whether the tower will be relocated before the end of the second regulatory period there is uncertainty as to whether all of the trunk mains extensions work will be completed by the end of the 2012/13.

Although there is some degree of uncertainty as to whether the 14th Street Tower Relocation and the associated Mildura Trunk Mains Extension will be completed during the second regulatory period, with the projects not planned until the last two years – 2011/12 and 2012/13 – and with the go ahead largely dependent on a return to pre-drought conditions, we recommend that the projects be left in the program. Although there is a definite potential for the projects to be moved out into the third regulatory period the two projects make up the bulk of the forecast capital spend in the last two years of LMW's water capital program, with the sewerage program also being low in these years.

14th Street Building Extension
LMW has a corporate capex project which was planned for the current year to extend the buildings at LMW's head office. This has been moved back into the second regulatory period as the Board does not give the wrong impression of the business spending money on corporate capital building projects during the drought.

LMW has included a total of $1.98m in 2010/11 in the Water Plan. The total cost of the project, as included in LMW's budget forecast is $3.3m, with the $1.98m being the 60% allocated to the Urban business. The remaining $1.32m has been allocated to the Rural capex program.

Although the project has already been delayed from its initial timeframe, the ESC has asked us to look for the opportunity to defer non-urgent capital works and, as such at the Draft Report stage, we considered that this project should be moved out of the second and into the third regulatory period. We noted that although there are benefits to the business from replacing the currently used temporary offices, the project does not improve service to customers so has to be considered as a non-urgent project.

LWM commented on our Draft Report that the project had been deferred from the original 2007 completion date as part of the 'survival budget' strategy employed by LMW during the drought. Although there is no impact on customer service, LWM considers that the project is an essential business investment to improve the current working conditions and the reliance on temporary buildings to house staff. As LMW has demonstrated prudent restraint during the drought, and as a result of further discussions with the ESC, we have revised our Urban capital expenditure forecasts from those included in the Draft Report to add this project back into the five year plan.

Kerang WWTW
This is a $3.3m project to line the lagoons at the treatment plant. LMW had experienced problems with the lagoons, in particular seepage from adjoining lagoons preventing any significant drawdown of lagoon levels to allow for desludging and remediation works on the embankments.

The refurbishment project was arrived at through an options analysis report by EarthTech in 2004. Condition assessment work carried out as part of the study found that the overall condition of the lagoon embankments was very poor and that work was required to repair all the lagoon embankments to the current EPA standards. The options analysis concluded

that the preferred option was to reconstruct the embankments and the removal of the internal embankments.

The cost estimate included in the Options Analysis Report for the preferred option was $2.96m, inflated up to $3.3m in the Water Plan from inflating up the 2004 cost estimate to 2007 costs.

The initial project study has been completed and LMW are currently undertaking the EPA study for the project. We note that LMW is proposing the whole project be completed in 2008/09. The Options Analysis report comments that it was understood that LMW would prefer to undertake the work over as short a time frame as possible and on this basis proposed a two year time frame for the desludging and carrying out the remediation work. However, as the work is required due to poor asset condition, and the work which determined the poor condition was carried out almost 4 years ago, LMW consider that there is a need to complete as soon as possible and that a one year program is adequate to complete the work.

4.2.5 Capacity to Deliver the Urban Capital Program

- Information provided by LMW on the actual capital expenditure achieved in each year against the planned capital budget for each year for the Urban business capital program (in dollars of the day) is as follows:

Table 4-17 Lower Murray Water's Recent Historical Actual vs Budget Urban Capital Expenditure

Year	Capex Budget	Actual Capex	% of Budget Spent
2004/05	$11.673m	$8.697m	74.5%
2005/06	$17.763m	$8.143m	45.8%
2006/07	$16.368m	$6.372m	38.9%
Total	**$45.804m**	**$23.212m**	**50.7%**

- Historical analysis shows that LMW has not met its capital budgets in recent years. However, the capex underspend in the last couple of years has been largely as a result in delays in the Koorlong WWTW augmentation, which LMW had originally envisaged starting construction in 2006.
- Although the Urban capex program included in the 2008/13 Water Plan is significantly higher than in recent years, it is dominated by the Koorlong WWTW project, with a forecast cost of $13m, all of which is included in LMW's Water Plan to be spent in the first year of the second regulatory period, even though the evidence would appear to show that the project is more likely to occur over 2008/09 and 2009/10. If this project were excluded from the program the total for 2008/09 would be similar to the cost of the program that LMW has had in place in some of the recent years, and whilst LMW has not achieved budget historically it has generally achieved the bulk of the program.
- In addition, an extra $5m has been forecast for the Koorlong WWTW Recycling project, which LMW has defined as non-prescribed and excluded from the Water Plan capex for its prescribed services, although we consider that this should be included in the prescribed capex projections.
- Excluding the Koorlong WWTW projects, the 2008-13 capital program would be as shown in the following table.

Table 4-18 Lower Murray Water's Historical and Forecast Urban Capital Expenditure (including and excluding the Koorlong WWTW Forecast Spend)

Item	First Regulatory Period			Second Regulatory Period				
	Financial Year Capex ($m, 01/01/07)							
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13

Regulated capex in Water Plan	10.36	8.89	8.92	26.89	7.71	8.05	6.36	8.38
Total capex excluding Koorlong WWTW	**10.36**	**8.89**	**8.92**	**13.89**	**7.71**	**8.05**	**6.36**	**8.38**

- Although this shows the program to be front heavy, with the highest spend still falling in 2008/09, due to a number of other large capital projects – the $3.3m Kerang WWTP refurbishment, the $1.8m Red Cliffs WWTP decommissioning and the $1.326m Nichols Point first time sewerage scheme - LMW has shown historically that it has been able to achieve a similar capex spend to that which it is proposing for the last four years of the second regulatory period.
- Therefore, the capacity for LWM be able to deliver its proposed capital program relies heavily on appointing a contractor for the Koorlong WWTW augmentation project and the project starting on time. Based on our observations during the course of our interviews with LMW we consider that it is likely that the Koorlong WWTW augmentation project could start approximately 6 months behind the date which LMW had planned in the Water Plan.
- The April 2006 Business Case for the Koorlong WWTW Augmentation included an 18 month construction period, from December 2006 to June 2008, although LMW has said that they consider that with a major contractor the work could be done in 6 months.

4.2.6 Recommendations

- Based on the information that was provided to us at audit we recommend that the expenditure for the Koorlong WWTW augmentation project be split over a two year period, 2008/09 and 2009/10. Although the 2006 Business Case for the project included an 18 month construction phase, LMW now expects a 6 – 8 month construction phase, although this is largely dependent on a contract being awarded to a major contractor. An additional 3 month phase is expected for commissioning. Therefore, we would recommend that LMW assume an overall 12 month time for practical completion but split the proposed $13m on a 70:30 basis between the two years, $9.1m for 2008/09 and $3.9m for 2009/10.
- LMW has defined the Koorlong WWTW Recycling project as a non-prescribed service in its Water Plan. Based on the information provided by LWM and discussions with the ESC we consider that this should be classed as a prescribed service and included in the regulated capex program. The Water Plan includes a forecast of $5m for the project which we recommend is split 70:30 between 2008/09 and 2009/10, as for the Koorlong WWTW augmentation project, with $3.5m included for 2008/09 and the remaining $1.5m for 2009/10.
- In its Water Plan forecast, LMW has included Permanent Water Rights as operating expenditure. Based on information provided to us by the ESC we have removed this spend from the opex forecasts and reallocated it as capex.
- We consider that the capex spend on new and replacement PCs and laptops is high. Therefore, assuming an overall staff level of 180 staff, an average replacement unit cost of $2,000 and that older laptops and PCs are able to have some additional use within the business, we consider than a total five year spend of $360,000 on new and replacement computers would be sufficient. At the time of replacement, LWM sells off its PCs and laptops, with the proceeds being included in the proceeds from the sale of assets. Some items are retained within the business as spares or sold off to staff if there is remaining useful asset life.
- Therefore, our recommended changes to Lower Murray Water's regulatory Urban capital expenditure forecasts are as follows:

Table 4-19 Recommended Changes to Lower Murray Water's Urban Capital Expenditure for Regulatory Purposes

			$m				
Item	**Item/Description**		**2008/09**	**2009/10**	**2010/11**	**2011/12**	**2012/13**
1	Koorlong WWTW Augmentation	Original Water Plan Forecast	13.0	0	-	-	-
		Recommended Revised Forecast	9.1	3.9	-	-	-
		Recommended Net Change	-3.9	+3.9	-	-	-
2	Koorlong Recycling (change to prescribed)	Original Water Plan Forecast	-	-	-	-	-
		Recommended Revised Forecast	3.5	1.5	-	-	-
		Recommended Net Change	+3.5	+1.5	-	-	-
3	Permanent Water Rights (transfer from opex to capex)	Original Water Plan Forecast	0	0	0	0	0
		Recommended Revised Forecast	0.53	0.53	0.53	0.53	0.53
		Recommended Net Change	+0.53	+0.53	+0.53	+0.53	+0.53
4	IT capex for new and replacement laptops and PCs	Original Water Plan Forecast	0.09	0.09	0.11	0.12	0.12
		Recommended Revised Forecast	0.06	0.06	0.07	0.07	0.07
		Recommended Net Change	-0.03	-0.03	-0.04	-0.05	-0.05
Total Recommended Net Change:			-0.10	+5.9	+0.49	+0.48	+0.48
Original Water Plan Total Regulatory Capex:			27.14	7.47	8.05	6.36	8.38
Recommended Revised Total Regulatory Capex:			**27.04**	**13.37**	**8.54**	**6.84**	**8.86**
% Change:			-	+79%	+6%	+7%	+6%

5. LOWER MURRAY WATER - RURAL

5.1 Operating Expenditure

A summary of Lower Murray Water's Rural water business historical and forecast operating expenditure, as included in the ESC's original information template submitted with Lower Murray Water's Water Plan is shown in Table 5-1.

Table 5-1 Lower Murray Water's (Rural) Historical and Forecast Operating Expenditure

Item	First Regulatory Period			Second Regulatory Period				
	Financial Year Opex ($m, 01/01/07)							
	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Operating Expenditure Summary								
Business As Usual Opex	10.66	10.15	9.20	11.02	11.24	10.47	10.67	10.83
Bulk Water Charges	0.72	0.66	0.60	0.56	0.56	0.56	0.56	0.56
Licence Fees	-	-	-	-	-	-	-	-
Environmental Levy	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Total Prescribed BAU Opex	11.56	10.99	9.99	11.76	11.98	11.21	11.40	11.57
New Obligations	-	-	-	-	-	-	-	-
Total Operating Expenditure	**11.56**	**10.99**	**9.99**	**11.76**	**11.98**	**11.21**	**11.40**	**11.57**

5.1.1 General and Key Issues

- LMW has forecast Rural opex to be fairly stable over the period. No new obligations have been proposed for the Rural side of the business for 2008/13, but LMW has noted in its Water Plan that the capital program will result in changes to the BAU operating expenditure.
- The Water Plan shows a gross Rural opex increase of 17.7%, from $9.99m to $11.76m, between 2007/08 and 2008/09, with the BAU opex increasing by 16.3%. The majority of the increase has been allocated to irrigation, which increases from $5.34m in 2007/08 to $6.45m in 2008/09. BAU opex is forecast to increase a further 6% in 2009/10 before an 8.42% decrease in 2010/11.
- Operating expenditure for maintenance activities has been based on historical data. LMW's asset management system and costing system are interfaced, allowing LMW to assess historical data and the projected work on a 10 year horizon.
- LMW's finance system has individual cost codes for each of its sites and each of the functions and activities carried out within each site. LWM produces a monthly opex report of costs allocated to each of the cost codes and reports this against the budgets for each site.
- For specific maintenance, LMW has work history data and the associated work order cost data only going back to 2005.
- As LMW has a 10 year maintenance program in place there are some maintenance activities which are carried out on a cyclic rolling program which did not take place in the first regulatory period and only occur in specific years in the second period.
- Although there have been reductions in the rural population, it has not resulted in an accompanying reduction in demand, with other customers wanting to buy up the water if any becomes free.
- Corporate operating expenditure is split between the Urban and Rural sides of LMW's business based on a 60 urban:40 rural ratio This was based on analysis

of the pre-merged urban and rural businesses. The urban expenditure is spilt out to the water supply and wastewater services based on the number of assessments. The rural corporate expenditure is split out to each of the different irrigation districts based on the number of customers in each district.

- Opex allocated to Corporate Information Technology is split between the Urban and Rural sides of LMW's business based on a 90:10 ratio between the Urban and Rural businesses.
- As a result of more automation in the rural system, the operations area is expected to reduce from 9 FTEs to 3 FTEs in 2010 when the SCADA systems are brought on line.
- Energy contracts are different for urban and rural businesses but are due for renewal during the Period. LWM is looking to optimise energy costs through a single supplier but has allowed for increased costs, as forecast by the energy industry, in the Water Plan.

5.1.2 Review of LMW's General Ledger Budget 2008-13

LMW was used detailed analysis of the expenditure against its different cost codes reported in its General Ledger to derive the opex forecasts for the second regulatory period. Total expenditure has been split between the urban and rural sides of the business based on the specific spend in the different areas that can be separated out or by using the general assumptions. We reviewed the General Ledger Budget Review 2008-13 spreadsheet in detail and made the following observations for the opex forecasts for the Rural business.

- LMW currently has three different electricity contracts in place; one contract with AGL for its urban system, one with Power Direct for its <160 ML/year rural sites and one with Country Energy for its >160 ML/year rural sites. It is expected that the first two contacts will roll into one contract during 2008. The contract for the >160 ML/year rural sites is due for renewal at the start of the 2009/10 financial year. It is expected that eventually all three of the current contracts will end up as one contract. Contract negotiation is undertaken by a consultant on behalf of LMW in order to get the business the best deal.
- The forecasts included in the Water Plan for electricity usage during the second regulatory period were based on advice provided to LMW by the ESC to allow an increase of 30% over the period. However, in discussions with the ESC they have said that they did not provide this guidance. After the draft expenditure forecast review report was submitted, the ESC provided more information and has derived an allowance for electricity increases. These allowances have been included in the adjusted final revisions to LMW's Urban and Rural operating expenditure forecasts.
- Irrigation Pumping costs are forecast to increase from $1.38m in 2008/09 to $2.00m in 2009/10 as a result of the increased pumping from the new high pressure Robinvale pipeline which is due to be completed during 2008/09. The increase in electricity for the Robinvale High pressure System has been derived from information included in the Options Report for the project, which estimates that the pumping requirements of the high pressure system would be double that of the existing system. The electricity costs in the Development of Supply Options for the Robinvale irrigation District have been estimated as $1.15m/year. The electricity costs have also been taken from the Replacement Plan for the Merbein main channel and main pumping station that LMW has programmed in its capital works program for 2008/09 and 2009/10. The electricity costs for the replacement pumping station and the main channel pipeline have been estimated as $0.41m/year.

- LMW's forecasts show a large increase in Irrigation Reticulation costs from $1.55m in 2007/08 to $2.05m in 2008/09. However, the current year budget has been based on a 'Survival' budget, with LMW reducing maintenance activities on the reticulation to the minimum based on a risk based approach where it thinks deferment of works is possible. The actual spend against this cost code for 2005/06 and 2006/07 was in excess of $2m in each of the years, so the forecast increase in 2008/09 is returning the spend to pre-'Survival' levels. The Irrigation Reticulation expenditure is then to reduce to $1.6m in 2009/10 before approximately halving from the first regulatory period actual expenditure to in the region of $1.09m for the rest of the period. The reduction in the opex is as a result of the automation of the rural systems that LMW is introducing through its capital program in the first two years of the second regulatory period. LMW is planning a large routine maintenance workload on the Robinvale reticulation in 2008/09 before the new high pressure pipeline is introduced, with $0.24m predicted to be spent compared to the $0.13m budgeted for 2007/08.

- The Rural opex forecasts include a spend of $0.48m against Buildings in each year in the second regulatory period which has been allocated to 'Renewals Payback'. This is related to the move from a renewals annuity approach to a RAB approach. Where money has been owing on renewals, it has been included to be claimed back over a ten year period. It has been recorded against 'Buildings' although it is not related to any building related activities. Analysis of the renewals annuities showed different balances in the different areas of expenditure for each of the irrigation districts. Where the renewals balance found a positive outcome the regulatory asset value has been decreased accordingly. However, the analysis showed a negative balance for Red Cliffs Irrigation activities with a smaller negative balance for Private Diverters and for Millewa. As a result of this, LMW has looked to recover the advanced renewals expenditure back over a ten year period.

- Corporate operating expenditure is split between the urban and rural sides of LMW's business based on a 60 urban:40 rural ratio This was based on analysis of the pre-merged urban and rural businesses. The urban expenditure is spilt out to the water supply and wastewater services based on the number of assessments. The rural corporate expenditure is split out to each of the different irrigation districts based on the number of customers in each district.

- As with the Urban business, wage increases in the opex forecasts are based on LMW's Enterprise Bargaining Agreement, with an increase of 1.5% above CPI. The current EBA runs until 2009/10, with the future forecasts based on the current rates. Further increases are based on assumed movement of staff to high grade levels and new staff, as previously outlined in Section 4.1.2.

- The increased automation of the irrigation systems, as included in LMW's rural capital program, is forecast to result in redundancies from the Operations Room, resulting in a reduction in 'Control Room' opex from $0.52m in 2008/09 and 2009/10 to $1,000 in the subsequent years.

- LMW has forecast a considerable expenditure on 'Essential Services Commission' costs during the second regulatory period. The majority of the historic spend and the forecast is allocated to 'Consultants', with the majority of the remainder allocated to 'Internal Labour' and the associated on-costs. The spend has been allocated between the Urban and Rural businesses based on a 60:40 split.

  The spend for 'Consultants' recorded against the General Ledger item of 'Essential Services Commission' has been forecast to be $2,000 for the first three years of the second period, rising to $140,000 in 2011/12 and $60,000 for 2012/13. As with the forecast Urban opex, LMW has included the increases towards the end of the period for preparation of the next Water Plan.

Table 5-2 Lower Murray Water's Forecast Rural Operating Expenditure on ESC-Related Activities

	2008/09 ($)	2009/10 ($)	2010/11 ($)	2011/12 ($)	2012/13 ($)	Regulatory Period Total ($)
ESC- Consultants	2,000	2,000	2,000	140,000	60,000	206,000
ESC – Internal Labour (including on-costs)	1,184	1,184	1,184	29,600	14,800	47,952
ESC – Other costs	800	800	800	1,000	1,000	4,400
ESC – Licence Fees	14,400	14,400	14,400	14,400	20,400	78,000
Total ESC Costs	**18,384**	**18,384**	**18,384**	**185,000**	**96,200**	**336,352**

LWM provided us details from its General Ledger for the actual historical expenditure for all the sub-codes related to the main 'Essential Services Commission' cost code going back to 2003/04. The expenditure related to 'Essential Services Commission' is provided in the following table.

Table 5-3 Lower Murray Water's Historical Rural Operating Expenditure on ESC-Related Activities

	2003/04 actual ($)	2004/05 actual ($)	2005/06 actual ($)	2006/07 actual ($)	2007/08 budget ($)	Total ($)
Urban ESC Costs (60%)	33,000	151,800	170,400	197,440	139,560	**692,200**
Rural ESC Costs	22,000	101,200	113,600	186,560	93,040	**516,400**
Total ESC Costs	**55,000**	**253,000**	**284,000**	**384,000**	**232,600**	**1,208,600**

The expenditure incurred for 2003/04 to 2006/07 is the actual spend, with that for 2007/08 the budget for the final year of the first regulatory period. The split between the Urban and Rural spends has been derived based on a 60:40 split with the exception of the 2006/07 data, where the split is closer to 52:48.

We note that the 2003/08 actual/budget for Rural ESC costs exceeds the five year forecast for the second regulatory period.

In the previous review of LMW's expenditure forecasts, SKM considered that the proposed total budget for 2006/07 and 2007/08 of $0.72m for the preparation of the current Urban and Rural Water Plan was high, and suggested a revised total of $0.26m, with a further $0.06m for a single regulatory audit during the first regulatory period. Although LWM have exceeded SKM's suggested expenditure in the first year, with the combined Urban and Rural spend, and is expected to have spend more than double what was suggested by the end of the second year, the costs incurred by LMW do seem high for the work that would be expected to be involved in preparing the Water Plan. In particular, the costs forecast to be spent on consultants appear high, as we would expect much of the information included in the Water Plan to have come from the normal work activities of LMW's own staff. LMW noted that due to industry skill shortages there has been a significant increase in the rates for its consultants.

The historical spend on activities allocated to the Rural ESC costs totals $279,600 for 2006/07 and 2007/08. For the last two years of the second period (2011/12 and 2012/13), with the forecasts for these years relating predominantly to preparing the next Water Plan, the total forecast Rural ESC related expenditure is $281,200. This is similar to the historical spend. However, we still consider that the estimates remain high, based on our view that the involvement of LMW's own staff would be expected to be higher than has been included in forecasts.

- Bulk Water Charges of $2.55m in 2008/09 increasing year–on-year to $3.01m in 2012/13 have been included in the Water Plan based on LMW's current entitlements and an estimate of the increased charges it is expecting to have to pay to Goulburn-Murray Water (G-MW). At the time that the Water Plan was prepared, LMW had not had any information provided by G-MW and noted that it would have to review the details included in G-MW's Water plan as to the level of charges it was planning to implement for the 2008/13 period. The Bulk Water Charges are a straight through cost, with LMW charging its customers whatever GM-W charges it.
- From the information provided in the Water Plan, by observation it appeared that there were significant increases in the expenditure allocated to Customer Service and Billing in 2007/08 and 2008/09. However, these apparent increases have been as a result of reallocating the areas where the customer service and billing was previously reported. The billing expenditure was previously allocated within the Administration cost codes. Overall the specific spend on these items is forecast to be stable over 2008/13.
- As with the allocation to the Urban business, the Operating costs attributed to Maintenance Management Systems are forecast to increase significantly, from this year's budget estimate of $70,000 to an annual spend of $102,882/year throughout the second regulatory period. The increase is largely explained as two of the new staff that LMW is looking to recruit will be employed in the area of Maintenance Management and a large proportion of their time will be charged to this cost code.
- Increases are also forecast in the related area and cost code of Asset Management, with $70,551/year forecast for 2008/13 compared to the 2007/08 budget of $32,601. Although some of the increase is explained through the increase in staff in this area, the breakdown of the forecasts also shows a significant increase in the expenditure allocated to Consultants; $40,000 in each year of the period compared to a current year budget of $2,000. The increases in the Consultant fees have been explained as being as a result of LMW's implementation of advanced asset management and the training and reporting associated with these improvements. Based on our discussions on the improvements that LMW is making over the second regulatory period to is asset management systems and practices, we consider that this additional spend is reasonable.
- LMW's budget forecasts for 2008/13 show a large increase in the spend for Drainage Monitoring. Historical spend from the General Ledger shows a very small spend totalling less than $12,000 in the last two years. LMW has increased this in the 2007/08 budget to $25,000. However, LMW has forecast this to increase further to an annual spend of $100,000 throughout the second regulatory period. This is as a result of a new obligation from the EPA, with the majority of the expenditure, $75,000/year, being forecast to be spent on laboratory testing. The Environmental Obligations are outlined in LMW's Water Plan.
- Rural productivity improvements are expected from a new meter fleet ($9.3m over 10 years) which is expected to result in $300,000/year savings in meter readings and a further $300,000/year saving in reduced maintenance.
- We confirmed that estimated budgets for the disposal of assets have been netted off LMW's estimated operating budgets.

5.1.3 Recommendations

- Overall, as for the Urban opex forecasts, we consider that the operating cost forecast estimates for the Rural business have been derived using a well developed and robust methodology based on detailed cost code information from

Lower Murray Water's financial system. Although LMW does not have as much historical data on work activities and the associated costs as it does for the Urban side of its business, the assumptions underpinning the operating cost forecasts generally appear realistic, although a number of items included in the budget appear to be slightly higher than we would have predicted and higher than the historical spend would have suggested. Overall, the gross opex for the Rural business is remaining steady over 2008/13, with the BAU opex also generally remaining steady and at a similar level to 2005/06 actual spend for most of the second period.

- LMW has included reductions in labour and operating costs where there is forecast to be a change from increased automation, upgrades of infrastructure and decommissioning of key assets within its operating expenditure forecasts.
- The ESC has provided a breakdown of the Rural forecast operating expenditure in which they have calculated a target Business As Usual opex, based on a 2006/07 base year Business As Usual operating expenditure. The difference between LMW's Business As Usual Rural opex and the ESC's target BAU Rural opex has been calculated for each year to provide a variance from the target opex.
- After the Draft Report was submitted to the ESC, the ESC provided additional analysis which allowed for additional electricity increases and additional labour increases, providing a consistent approach across all of the Victorian water businesses. This resulted in revised target BAU expenditure for each of the five years in the second regulatory period.
- The original and revised BAU targets, taking into account the ESC's allowances for additional labour and electricity increases, and the resultant revised variance from the revised target opex are provided in Table 5-4.

Table 5-4 Lower Murray Water's Proposed BAU Rural Opex and Variance from the ESC's Revised Target BAU Rural Opex

	2008/09 ($m)	2009/10 ($m)	2010/11 ($m)	2011/12 ($m)	2012/13 ($m)	Regulatory Period Total ($m)
LWM Rural BAU Opex	9.23	9.46	8.69	8.88	9.05	**45.31**
ESC Original Target Rural BAU Opex	8.20	8.12	8.04	7.96	7.88	**40.19**
ESC Allowance for Additional Labour Increases	0.06	0.13	0.19	0.25	0.32	**0.95**
ESC Allowance for Additional Electricity Increases	0.17	0.21	0.17	0.17	0.17	**0.90**
ESC Revised Target Rural BAU Opex	8.44	8.45	8.40	8.38	8.37	**42.04**
ESC Revised Variance from Target Rural BAU Opex	0.80	1.01	0.29	0.50	0.68	**3.27**

Based on our analysis of LMW's breakdown of operating expenditure forecasts, we consider that of the total additional Rural BAU opex of $3.27m over the second regulatory period, $4.94m has been acceptably explained by LMW. The acceptable additional opex relates to the proposed expenditure on a combination of new obligations, additional staff levels and new and revised operating incentives, including new expenditure on the Robinvale High pressure System. In addition, the ESC has accepted LMW's addition of the Merbein Renewals Annuity Phase Out into the proposed Rural opex since the Draft Report was submitted.

The breakdown and totals for the explained and accepted additional Rural opex costs are provided in Table 5-5.

Table 5-5 Lower Murray Water's Explained Additional Rural Operating Expenses during 2008/13

	2008-09 ($m)	2009-10 ($m)	2010-11 ($m)	2011-12 ($m)	2012-13 ($m)	TOTAL ($m)	NPV ($m)
Additional staff costs	0.15	0.18	0.21	0.21	0.21	0.96	0.822
Robinvale High pressure System Expenditure	0.00	0.33	0.37	0.34	0.36	1.4	1.177
Drainage Monitoring	0.10	0.10	0.10	0.10	0.10	0.5	0.432
Water Register Reimbursement	0.18	0.18	0.18	0.18	0.18	0.9	0.777
Merbein Renewals Annuity Phase Out	0.59	0.59	0.00	0.00	0.00	1.18	1.095
TOTAL	**1.02**	**1.38**	**0.86**	**0.83**	**0.85**	**4.94**	**4.304**

- The additional operating expenses that LWM has forecast for its Urban business are higher than the ESC-derived variation from the target BAU opex and demonstrate that LMW is achieving the ESC's required 1% p.a. efficiency target.

- Therefore, we consider that no revisions are required to LMW's regulatory Rural operating expenditure forecasts for 2008/13 from the forecasts included in the Water Plan.

5.2 Capital Expenditure

A summary of Lower Murray Water's Rural water business historical and forecast capital expenditure, as included in the ESC's information template is shown in Table 5-6.

Table 5-6 Lower Murray Water's (Rural) Historical and Forecast Capital Expenditure

Item	First Regulatory Period			Second Regulatory Period				
	Financial Year Capex ($m, 01/01/07)							
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Irrigation Pipelines	1.20	1.89	24.48	18.52	2.15	11.75	19.46	1.28
Irrigation Channels	0.09	0.08	0.38	1.00	-	-	-	-
Irrigation Sub-Total	**1.29**	**1.97**	**24.86**	**19.52**	**2.15**	**11.75**	**19.46**	**1.28**
Drainage Pipelines	0.51	0.11	0.16	0.07	0.15	0.13	0.13	0.13
Drainage Channels	-	-	-	-	-	-	-	-
Drainage Sub-Total	**0.51**	**0.11**	**0.16**	**0.07**	**0.15**	**0.13**	**0.13**	**0.13**
Domestic & Stock Pipelines	0.19	0.20	0.48	1.08	0.10	0.13	0.03	0.03
Domestic & Stock Channels	-	-	-	-	-	-	-	-
Domestic & Stock Sub-Total	**0.19**	**0.20**	**0.48**	**1.08**	**0.10**	**0.13**	**0.03**	**0.03**
Surface Water Diversion Pipelines	0.63	0.65	0.92	1.05	0.30	0.10	0.10	0.10
Surface Water Diversion Channels	-	-	-	-	-	-	-	-
Surface Water Diversion Sub-Total	**0.63**	**0.65**	**0.92**	**1.05**	**0.30**	**0.10**	**0.10**	**0.10**
Corporate	0.63	0.96	0.30	1.03	0.27	1.61	0.28	0.27
Total Business As Usual	**3.26**	**3.89**	**22.70**	**22.76**	**2.97**	**13.73**	**20.00**	**1.81**
Unregulated	-	-	-	-	-	-	-	-
New Obligations	-	-	-	-	-	-	-	-
Total (Whole of Business)	**3.26**	**3.89**	**22.70**	**22.76**	**2.97**	**13.73**	**20.00**	**1.81**
Total (Regulated)	**3.26**	**3.89**	**22.70**	**22.76**	**2.97**	**13.73**	**20.00**	**1.81**

5.2.1 General and Key Issues

- The 2007/08 Rural capital program is, at over $25m, approximately 5 times higher than the 2006/07 program and remains at over $20m for the first year of the period. The program profile over the period is variable, with relatively low forecast expenditure in Years 2 and 5. The high forecast spend proposed for 2008/09, 2010/11 and 2011/12 are predominantly due to two major projects: the Robinvale high pressure system (proposed for 2008/09) and the Merbein pipeline replacement project (proposed for 2010/11 and 2011/12).
- The Robinvale high pressure system ($16.6M and a total project value of $40.5m) has had Treasury Gateway approval. LWM has obtained $20m State Government funding for the project. Construction is expected to commence by November 2007 and be completed by 2008/09.
- The Merbein pipeline and pump station ($22m) and the Red Cliffs pump station replacement ($6m), both of which are scheduled for 2010/11 and 2011/12, have not yet been submitted through the Gateway approval process. LWM has sought funding assistance of up to $11m from the Federal Government for the Merbein project as a water conservation issue. However, LMW has had their first application for external funding for this project rejected, although it is currently preparing a second application.

  More detailed comments on the Robinvale and Merbein projects are included in Section 5.2.4.
- As with the Urban capital program, there is a high level of uncertainty in the Rural capital program in terms of projects that LMW have committed to. The $16.6m

Robinvale high pressure system has been committed to for 2008/09 but there is an additional $20m of projects in Year 1 that had not been committed to at the time the Water Plan was prepared. For the remainder of the period, very little of the program has been committed to and, as such, the project cost estimates have a high degree of uncertainty. Projects included in the Water Plan only include a contingency up to 15% based on past experience.

- For 2004/05, LMW had a capital program of $4.139m but achieved only 35% of this, $1.472m. For 2005/06, LWM exceeded budget but the program was smaller than the previous year at $2.284m. In 2006/07 the program was $10.078m but LMW only achieved of $2.930m. We have provided more comments on LMW's capacity to achieve its proposed second regulatory period capital program in Section 5.2.5.
- The Water Plan notes that '*LMW's condition monitoring program is ongoing and may result in renewal requirements which have not been specified in the Capital Plan*'. LMW is considering an allocation of $400,000 per year for unspecified reactive works.

5.2.2 Capital Planning Processes

- LMW's capital planning processes for its Rural capital projects generally follows the same processes as for the Urban business, outlined in Section 4.2.2.
- The projects that are initially identified as being needed are developed further as the proposed timeframe for their requirement approaches. Major projects use an options analysis approach based on a triple bottom line analysis to develop a preferred option to take forward to the more detailed design and costing stages.

5.2.3 Asset Management Systems and Processes

- IT and asset management investment is increasing on the rural side of the LMW's business to bring the systems and processes more in line with those used in the urban side of the business. Historically the rural asset management activities were based on a more reactive approach. The majority of the Rural capex forecast for 2008/13 is made up from annual replacement programs.
- As with the Urban opex, the Rural operating expenditure for maintenance activities has been based on historical data. LMW's asset management system and costing system are interfaced, allowing LMW to assess historical data and the projected work on a 10 year horizon.
- For specific maintenance relating to the Rural side of the business, LMW has work history and the associated cost information only going back to 2005.
- As LMW has a 10 year maintenance program in place there are some maintenance activities which are carried out on a cyclic rolling program which did not take place in the first regulatory period and only occur in specific years in the second period, for example air scouring, which LMW carries out on a 4-year rolling program in each of the rural districts.
- Details of the asset management systems and processes used to derive the Rural replacement and refurbishment programs included in the Water Plan are outlined in Section 4.2.3.

5.2.4 Major Rural Capital Projects

Robinvale High Pressure System

The Robinvale rural pipeline project is taken from LMW's Master Plan. A business case report for the pipeline assessed a number of different options for the pipeline, with the preferred option being found to be moving from a low pressure system to a high pressure system. The existing system has high maintenance costs in the region of $300,000/year and is considered to be under-designed for its purpose.

The total system upgrade has been estimated as $40.5m, with $20m coming from State Government funding and the remainder of the costs being borne by the growers in the Robinvale Irrigation District. The $40.5m includes a 40% contingency and 15% for the project management, survey and design work. This cost was initially forecast in the report on the Irrigation System Upgrade for the Sunraysia – Mildura Region from November 2005. The contingency has been used up as construction costs have increased in the two years since the cost was forecast. The project budget for 2007/08 is in the region of $19m, made up of $16m pipe supplies and a further $3m of construction costs. LMW has forecast a spend of $14.8m for 2008/09. The budget for this year is expected to all be spent within the current year, with no carry on into 2008/09.

The project is currently in detailed design stage. LMW has a shortlist of five tenderers and expect to appoint the preferred tenderer in early 2008. The construction phase is expected to start in February 2008 and be completed by October 2008. LMW considers that it is benefiting from the Wimmera-Mallee pipeline project being implemented by GWMWater settling down as this has meant that contractors involved in that major pipeline project have a better knowledge of their workload and availability for other projects such as LMW's pipeline projects.

It has been acknowledged that there is an advantage in delaying the project a few months as the irrigation season stops in April and the appointed contractors would be expected to be able to lay the pipes quicker and more easily if the construction phase didn't start until April. This would not expect to impact on the overall timeframe for the construction phase or the project budget forecasts for 2007/08 and 2008/09.

Merbein High Pressure System

The Merbein High Pressure System project has been taken from the recommendations included in the Options Report for the irrigation district. Five options were considered, with cost benefit and a Triple Bottom Line analysis undertaken to arrive at the preferred option of high pressure system with 35m head at the outlet and a low pressure pipeline replacing the existing channel. The cost estimate included in the February 2006 Replacement Plan totalled $58.49m including a 40% contingency and 15% for the project management, survey and design components of the project.

Based on the asset lives and the remaining lives of the existing system, no assets are required to be replaced until 2025 at the earliest, although some of the pumping station components are due to be replaced in the next 10 – 15 years. The Replacement Plan notes that:

"*As significant works would be required on the main pumping station in conjunction with the replacement of the main channel with a pipeline in 20 years, it would be desirable to prolong the lives of those components until the pumping station upgrade and main channel replacement occur*".

However, the Replacement Plan also identified that there was a case for an immediate replacement of the main channel, with high maintenance costs being incurred, the existence of an earthen channel in a high impact zone and the presence of rubbish and other contaminant material in the channel having a detrimental impact on farm supply point filters. Condition assessments on the main channel have assigned Condition Grade 5 to

the concrete lined section of the channel and Condition Grade 4 to the earthen section. Therefore, although the asset life information results in a remaining life of 10 years, the 2005 asset condition work has shown that the remaining asset life is more in the region of 5 years, with replacement required by approximately 2010.

The cost estimate in the Replacement Plan for the immediate replacement of the main channel was $12.7m.

The main channel and pumping station replacement projects that LMW has included in its Water Plan are dependent on the completion of the Robinvale High Pressure Project, with the Merbein pipeline project planned to follow straight on. Therefore, the more detailed design stage is expected to be finished in the first half of 2008/09 to allow the construction phase to start on time. LMW has included $9m for 2008/09 but considers that even if construction doesn't start until the latter part of 2008/09 that it would spend the forecast budget on pipe supplies by the end of the financial year.

The project is currently going through an in-house feasibility study by LMW's Electrical Engineers to assess the existing pumps in the system. The main pumping station component of the study has already been completed.

However, LWM acknowledges that there are questions as to the long-term viability of the Merbein Irrigation District, with a significant number of growers in the district experiencing financial difficulties. As a result the upgrade to a high pressure system is something of a Catch-22 situation, with the upgrade needed to ensure long term viability of the district but with there being issues as to whether the growers can afford to fund the upgrade.

The Economic and Financial Analysis of Projects for the Sunraysia Business Case report from November 2005 concluded that the upgrade of the Merbein channel was not an economically viable project, although the replacement of the channel is a critical component of an entire upgrade of the Merbein Irrigation District.

At present the project is planned to be 100% grower funded, although LMW is trying to obtain external funding to help pay for the project. The first application for funding was not successful, resulting in a second application which it is waiting to hear back on.

The project has had support from the Customer Consultation Services Committee as it would improve the service and quality of the water provided to the irrigation district and help improve the productivity of the growers. However, LMW acknowledge that the support for the project has dropped off in the last 12 – 18 months as a result of the drought.

Preliminary approval for the project has been given by the Board but it has not been given full approval at the current time.

Based on our discussions with LMW and the information that was made available to us, we recommend that the Water Plan include a forecast of $11m for this project; the funding that LMW has said it would spend whether or not it receives any external funding. As the first application for external funding assistance was unsuccessful and as the proposed project is still a few years away we recommend that LMW reopen discussions with the ESC should it be successful with the second application for external funding to match LMW's $11m. We recommend that the $11m be split 30:70 over the two years that LMW planned on carrying out this project, roughly in line with the split of funds proposed for the main channel work, with $3.3m included in 2010/11 and $7.7m included in 2011/12.

Red Cliffs Main Pumping Station Replacements

The Infrastructure Replacement Plan for the Red Cliffs Irrigation District has concluded that little capital work is required in the district until 2025. Although some components of the main pumping station are due to be replaced in the next 15 years, the Replacement Plan

suggested that it would be desirable to prolong the life of these components until the pumping station upgrade and channel replacement take place.

However, LMW has included a number of capital projects related to channel control in the second regulatory period. The largest projects are the replacement of the main pumping station pump sets, for which a spend of $1.2m has been forecast for each of the first three years of the period and the replacement of the main pumping station switchboards, for which a spend of $1.2m in each of 2009/10 and 2010/11 has been forecast.

LMW noted that although the Replacement Plan has identified that no replacements were required, the assessment did not assess the condition of the pumps themselves or their performance. LWM has experienced two major failures with the pumps since the Replacement Plan report was completed and, as such, have identified that the pumps require replacement. The current pump sets are 56 years old and replacement is required to improve efficiency in the system. The switchboards are being replaced to be compatible with the new pumps.

The project is being funded by the growers through revenue.

Water Wheel and Meter Replacement Program
LMW has included a significant spend during 2008/13 on rural meter and water wheel replacement. The forecast is $300,000 each year for water wheel replacements in both the Red Cliffs and Merbein Irrigation Districts, $250,000/year for meter replacement in Merbein, $300,000/year for meter replacement in Red Cliffs and a further $1.2m on meter replacements for the surface diverters.

LWM derives it meter replacement program from data stored in Proclaim, where the age of the meter and the meter throughout are recorded. Each meter is rated based on a combination of age and throughput to identify meters that require replacement. Cost information for meter installations is reported from Hansen, with different costs incurred for installing the different types of meter installed across LMW's supply area. The budget for the year is refined by assessing the workload and the number of meters that LMW would be likely to able to replace.

The water wheel replacement program involves removing the currently installed dethridge wheels and replacing them with meters. LMW has derived a unit rate for the replacement work of $10,000 per dethridge wheel removed and meter installed. It currently replaces 3 or 4 water wheels a week, meaning that the although the budget appears high and it is included as one of the largest rural capex projects, the forecast only allows for approximately 10 replacements in each district in each year of the second period.

Historical meter spend data and current year reporting of spend against budget show that the forecast capital expenditure for 2008/13 is not out of the ordinary or excessive.

Millewa Water Treatment Plant
LWM has included $1m in 2008/09 for improvements to the Millewa treatment plant to improve the water quality. The project is currently in the planning stage, with LMW employing Hunter Water to carry out the feasibility work. The project is fairly small and a 6 month design/construction phase is anticipated.

5.2.5 Capacity to Deliver the Rural Capital Program

- Information provided by LMW on the actual capital expenditure achieved in each year against the planned capital budget for each year for the Rural business capital program (in dollars of the day) is as follows:

Table 5-7 Lower Murray Water's Recent Historical Actual vs Budget Rural Capital Expenditure

Year	Capex Budget	Actual Capex	% of Budget Spent
2004/05	$4.139m	$1.472m	35.6%
2005/06	$2.284m	$2.548m	111.6%
2006/07	$10.078m	$2.930m	29.1%
Total	**$16.501m**	**$6.950m**	**42.1%**

- Historical analysis shows that LMW has not met its capital budgets in recent years. Although the rural capex program included in the 2008/13 Water Plan is significantly higher in certain years compared to the recent actual capex spend, it is dominated by the Merbein and Robinvale pipeline projects, which have been forecast at $22m and $16.6m respectively.
- If these project are excluded from the rural capex program, although the totals for the 2008/09, 2010/11 and 2011/12, when the expenditure for the Merbein and Robinvale projects is forecast to be incurred, the forecasts are still in excess of what LMW has achieved historically over the course of the last few years. The 2008/13 rural capital program excluding the Merbein and Robinvale pipeline projects would be as shown in the following table.

Table 5-8 Lower Murray Water's Historical and Forecast Rural Capital Expenditure (including and excluding the Robinvale and Merbein Forecast Expenditure)

Item	First Regulatory Period			Second Regulatory Period				
	Financial Year Capex ($m, 01/01/07)							
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Regulated Rural capex in Water Plan	3.26	3.89	26.70	22.76	2.97	13.73	20.00	1.81
Rural capex excluding Merbein and Robinvale	**3.26**	**3.89**	**3.90**	**6.15**	**2.97**	**6.73**	**5.00**	**1.81**

- As such, the program for at least three of the five years in the second regulatory period looks ambitious compared to what LMW has achieved historically, although there are a small number of notable large replacements in these years, i.e., the Red Cliffs pumping station replacements, which further add to the difference between the historical spend and the future program.

5.2.6 Recommendations

- As there are several uncertainties with the Merbein channel replacement project, in terms of the timing, funding and the viability of the system, we recommend that at this time that only the funding that LMW is proposing from its internal sources be included in the forecasts. If LMW is successful with its second application for external funding it will need to reopen discussions with the ESC to have the full scope of the project reassessed and LMW's pricing path readjusted. From discussions with the ESC it appeared the Robinvale pipeline project depended on external funding to determine whether the project would go ahead, and although there are likely to be similar issues with the Merbein channel replacement project, we consider that only including the internal funding is a reasonable compromise at this current time, with the ability for LMW to have future discussions with the ESC should the additional $11m be provided from external sources.
- In addition, based on the level of spend that LMW has achieved historically, we recommend a smoothing of the capex profile over the second period. The total program excluding the major Robinvale and Merbein projects totals $22.6m over the five years, an average of $4.5m/year. This is slightly in excess of the level of capex that LMW has achieved in recent years but we consider that smoothing the

spend profile would make the program more achievable. Whilst this is a slightly simplistic adjustment, with LMW's program being derived from a risk based prioritisation approach, this is closer to what LMW has been able to achieve historically and we have recommended that LMW look to revise its program to a more achievable level for each year in the second regulatory period.

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

Table 5-9 Recommended Changes to Lower Murray Water's Rural Capital Expenditure for Regulatory Purposes

			$m				
Item	**Item/Description**		**2008/09**	**2009/10**	**2010/11**	**2011/12**	**2012/13**
1	Merbein Pipeline	Original Water Plan Forecast	-	-	7.00	15.00	-
		Recommended Revised Forecast	-	-	3.30	7.70	-
		Recommended Net Change	-	-	-3.70	-7.30	-
2	Smoothing of program (excluding Robinvale and Merbein spend)	Original Water Plan Forecast	6.15	2.97	6.73	5.00	1.81
		Recommended Revised Forecast	4.52	4.52	4.52	4.52	4.52
		Recommended Net Change	-1.63	+1.55	-2.21	-0.48	+2.71
Total Recommended Net Change:			-1.63	+1.55	-5.91	-7.78	+2.71
Original Water Plan Total Regulatory Rural Capex:			**22.76**	**2.97**	**13.73**	**20.00**	**1.81**
Recommended Revised Total Regulatory Rural Capex:			**21.13**	**4.52**	**7.82**	**12.22**	**4.52**
% Change:			-7%	+52%	-43%	-39%	+150%

APPENDIX A

Major Projects Planned by Lower Murray Water

Table A1 Lower Murray Water (Urban) Major Capital Projects

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Koorlong WWTW	Changes to EPA standards and licence conditions at Koorlong and Red Cliffs WWTPs	13.0	23%	Appropriate to stage of development. Cost estimates based on detailed options analysis, including sensitivity analysis of the different options.	2008/09 LMW's timing is very ambitious based on information included in the Strategic Procurement Plan and the 2006 Business Case for the project. We have recommended project expenditure split over two years. Strategic Procurement Plan expected contract to be awarded in October 2008.	Very limited. Project originally included for first regulatory period but delayed. Any deferral would result in ongoing licence compliance issues and increasing maintenance opex.
Mildura Trunk Extension	Pressure improvements in system and improved fire fighting capabilities.	4.0	7%	Very preliminary at this stage, although appropriate given the proposed timing for the project.	2011/13	Yes. Project timetabled for last two years of second regulatory period and go ahead largely dependent on return to pre-drought conditions.

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Kerang WWTP	Repair of all lagoon embankments required to meet current EPA standards.	3.3	6%	Preliminary. Options analysis study completed in 2004. Costs based on the cost for the preferred option and inflated to 2007 figures.	2008/09	Limited. Project was identified in 2004, with inspection work at this time finding the embankment condition to be very poor. Any deferral would result in ongoing issues to meet the current EPA standards as well as increasing maintenance costs.
Relocation of 14th Street Tower	Pressure improvements in system and improved fire fighting capabilities.	2.0	3%	Very preliminary at this stage, although appropriate given the proposed timing for the project.	2011/13	Yes. Project timetabled for last two years of second regulatory period and go ahead largely dependent on return to pre-drought conditions.
Red Cliffs WWTW Decommissioning	Changes to EPA standards and licence conditions at Koorlong and Red Cliffs WWTPs	2.1	4%	Appropriate to stage of development. Cost estimates based on detailed options analysis, including sensitivity analysis of the different options.	2008/10 Project part of the overall Koorlong WWTW timetable. Final diversion of effluent dependent on Koorlong WWTW augmentation completion date.	Very limited. Project originally included for first regulatory period but delayed. Any deferral would result in ongoing licence compliance issues and increasing maintenance opex.

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Koorlong WWTW Recycling (non-prescribed)	Changes to EPA standards and licence conditions at Koorlong and Red Cliffs WWTPs	5.0	9%	Appropriate to stage of development. Cost estimates based on detailed options analysis, including sensitivity analysis of the different options.	2008/09	Very limited. Project originally included for first regulatory period but delayed. Any deferral would result in ongoing licence compliance issues and increasing maintenance opex.
Sewer Rehabilitation/ Replacement	Capital Replacement Program	3.8	7%	Historical rehabilitation and replacement cost data for previous work carried out through the program.	2008/13 Ongoing program	Potential for some deferral depending on updated condition and performance data as date for replacement of a particular asset approaches.
Water Renewals/ Replacements	Capital Replacement Program	3.0	5%	Historical rehabilitation and replacement cost data for previous work carried out through the program.	2008/13 Ongoing program	Potential for some deferral depending on updated condition and performance data as date for replacement of a particular asset approaches.
TOTAL		**36.2**	**63%**			

Table A2 Lower Murray Water (Rural) Major Capital Projects

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Merbein Pipeline and Pumping Station	Long-term upgrade to system to improve service to customers. Support from customer consultation committee	22.0	36%	Preliminary. Costs derived from Options Analysis Report and the preferred option chosen but no additional work yet completed to firm up cost estimates.	2010/12	Yes. There are issues as to the long-term viability of the Merbein system. LMW has included the project early in the program to package the work up with other pipeline work. It has included $11m of external funding although it has not had this funding approved, with the first application being unsuccessful. LMW say that will spend the $11m it was putting into the project irrespective of whether it receives the additional external funds.
Robinvale High Pressure System	Long-term upgrade to system to improve service to customers. Support from customer consultation committee	16.6	27%	2008/09 cost estimate based on balance of the project leftover from the first regulatory period to complete.	2006/2009. Project started in first regulatory period.	No. Project already started and expected to finish in first year of second regulatory period.
Red Cliffs Pumping Station Replacement	Replacement of assets based on condition and performance.	2.2	4%	Costs derived from Replacement Plan.	2010/12	Limited. The work has been brought forward from when it had been timetabled in the Replacement Plan as a result of two recent pump failures.

Project	Justification of Need	Forecast Cost in period		Basis of cost estimate	Project timing	Potential for deferral
		($m)	% total capex			
Meter and Water Wheel Replacement	Capital Replacement Program	6.05	10%	Historical rehabilitation and replacement cost data for previous work carried out through the program.	2008/13 Ongoing program	Potential for some deferral depending on updated condition and performance data as date for replacement of a particular asset approaches.
TOTAL		**46.85**	**76%**			