2012 Review of Water Prices

Assessment of Expenditure Forecasts for Grampians Wimmera Mallee Water

3603/64.004

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Cardno
Shaping the Future

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Glossary

Term	Definition
ANCOLD	Australian National Committee on Large Dams
Capex	Capital Expenditure
CPI	Consumer Price Index
CRC	Current Replacement Cost
EPA	Environmental Protection Authority
EPM	Enterprise Project Management System
ESC	Essential Services Commission
FTE	Full Time Equivalent
GIS	Geographical Information System
GL/yr	Gigalitres per year
G-MW	Goulburn-Murray Water
GSL	Guaranteed Service Level
GWMWater	Grampians Wimmera Mallee Water
ISO	International Organisation for Standardisation
IT	Information technology
KPI	Key Performance Indicator
LMW	Lower Murray Water
NPR	National Performance Report
NPV	Net Present Value
NWC	National water Commission
NWI	National Water Initiative
O&M	Operations & Maintenance
OM&A	Operation. Maintenance and Administration
Opex	Operating Expenditure
P_{50}	50th Percentile
P_{90}	90th Percentile
SCADA	System Control and Data Acquisition
SRW	Southern Rural Water
WIRO	Water Industry Regulation Order
WMP	Wimmera Mallee Pipeline
WP	Water Plan

Executive Summary

Cardno has been engaged by the Essential Services Commission (ESC) to undertake an independent review of the expenditure forecasts provided by Grampians Wimmera Mallee Water (GWMWater) as part of its Water Plan submission for the period 2013/14 to 2017/18.

Operating expenditure forecasts

Determination of baseline operational expenditure

GWMWater has developed its forecast operating expenditure by adjusting its 2011/12 actual expenditure to formulate a baseline figure that is representative of business as usual. Table 1-1 below reconciles the 2011/12 actual opex to its 2011/12 baseline opex.

Table 1-1 Reconciliation of 2011/12 actual operating expenditure to baseline operating expenditure

Adjustment	Amount
Actual 2011/12 business as usual opex	31.64
Adjustment for superannuation contribution	(1.40)
Baseline 2011/12 business as usual opex	**30.24**

Operation expenditure forecast - escalators

CPI

GWMWater has assumed the escalation factors detailed in Table 1-2 for general inflation. This assumption is consistent with the CPI assumptions recommended by the ESC.

Table 1-2 Assumed CPI

	13/14	14/15	15/16	16/17	17/18
CPI (per annum)	2.75%	2.75%	2.75%	2.75%	2.75%

Labour

GWMWater has assumed a nominal 4% per annum increase for all years of the regulatory in labour costs in line with its Enterprise Bargaining Agreement (EBA). This Agreement was recently agreed and its commencement will be back dated to April 2012. However, this Agreement only applies to the first three years of the regulatory period and it is likely that labour costs will increase at a rate closer to CPI over the last two years of the regulatory period. We therefore propose a reduction in GWMWater's labour costs to reflect this lower rate of increase in the last two years of the regulatory period.

Further, GWMWater has made an error in completing its financial template in that it has entered its assumed increase in labour costs as a nominal rate instead of a real rate. The real rate is the nominal rate net of inflation, i.e. (4% - 2.75%) 1.25%. Table 1-3 presents GWMWater's assumptions relating to labour and our recommended adjustments.

Table 1-3 GWMWater labour growth assumptions

	13/14	14/15	15/16	16/17	17/18
Actual and forecast labour costs for current FTEs ($M)	17.67	18.37	19.11	19.87	20.67
Cost per FTE ($000)	89.46	93.04	96.76	100.63	104.65
Annual growth in labour costs for current FTEs	4.00%	4.00%	4.00%	4.00%	4.00%
Cardno recommended increase %	1.25%	1.25%	1.25%	0%	0%
Variance (%)	(2.75%)	(2.75%)	(2.75%)	(4.0%)	(4.0%)
Recommended adjustment ($M)	**(0.47)**	**(0.48)**	**(0.49)**	**(0.71)**	**(0.72)**

Electricity

GWMWater has assumed that electricity prices will increase at 4% per annum (1.25% real increase) for its large and small sites at the expiry of its current contracts. We note that GWMWater's assumption relating to future energy prices is more conservative than published estimates by official bodies. While GWMWater will not know what actual increases it faces until it renegotiates its contracts in the coming two years, we have been advised that based on the findings of Procurement Australia, that no real increases in electricity prices should be allowed in future operating cost forecasts. On this basis, we recommend that the adjustments detailed in Table 1-4 be made to GWMWater's future operating cost forecasts.

Table 1-4 Adjustment to GWMWater future electricity costs

	13/14	14/15	15/16	16/17	17/18
GWMWater total cost ($M)	2.36	2.43	2.32	2.57	2.63
Revised total cost ($M)	2.36	2.37	2.23	2.44	2.46
Adjustment to operating cost forecasts	**-**	**(0.07)**	**(0.09)**	**(0.13)**	**(0.17)**

Chemicals

Due to the nature of the GWMWater's business chemical costs are not significant in determining its future operational expenditure requirements.

Operation expenditure forecast – WP3 submission

Our findings indicate that changes in operating expenditure forecast by GWMWater for WP3 are consistent with the timing of major capital projects and for fulfilling its obligations and customer service expectations as cost efficiently as possible. Any divergences from historical trends in operating expenditure have been explained by GWMWAter and are detailed in Section 4 of this report. We recommend that the $1M per annum operating expenditure proposed by GWMWater for decommissioning of redundant assets be allocated to capital expenditure so that its impact on customer bills is smoothed. Our final recommendations for GWMWater's operating and capital expenditure for the third regulatory period are outlined in Table 1-5.

Table 1-5 Recommendations for GWMWater's operating expenditure forecast

	13/14	14/15	15/16	16/17	17/18
Business as usual operating expenditure	29.17	28.33	27.91	27.73	27.48
Reallocation of decommissioning costs to capex	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)
Adjustment to labour costs	(0.47)	(0.48)	(0.49)	(0.71)	(0.72)
Adjustment to electricity costs	-	(0.07)	(0.09)	(0.13)	(0.17)
Recommended business as usual operating expenditure	**27.70**	**26.79**	**26.33**	**25.88**	**25.58**
Variance	**(1.47)**	**(1.54)**	**(1.58)**	**(1.85)**	**(1.89)**

Productivity assessment

The ESC requires all businesses to achieve a minimum of 1% per year productivity improvement on its baseline operating expenditure adjusted for growth. The ESC has determined a 'target' business as usual operating expenditure profile based on the 2011/12 baseline figure adjusted for customer growth and the productivity dividend target. Customer growth has been forecast using the adjusted average growth figures as determined through the review of future demand undertaken by ESC.

In its submission, GWMWater proposed a 2% annual productivity dividend on its unadjusted BAU totals. Rather than identify specific initiatives where productivity improvements will be achieved, GWMWater has applied the productivity saving to total expenditure. However, GWMWater believes that the areas where it will realise the productivity gains are:

> Operation of the WMP and decommissioning of the channel stock and domestic system

> Reduced staff levels through automation and remote monitoring

> Reduced costs associated with redundant assets that will be decommissioned.

Table 1-6 compares the target BAU operating expenditure adjusted for growth and the productivity hurdle to that recommended by Cardno. This demonstrates that GWM Water will comfortably meet the productivity hurdle set by the ESC in each year of the price path.

Table 1-6 Productivity hurdle assessment ($M)

Operating expenditure item	Actual 11/12	13/14	14/15	15/16	16/17	17/18	Total
Recommended operating expenditure		29.45	28.61	28.48	28.11	27.86	142.51
Less prudent and efficient new initiatives expenditure		1.75	1.82	2.15	2.23	2.28	10.23
Recommended BAU expenditure		27.70	26.79	26.33	25.88	25.58	132.28
Adjusted BAU target	30.24	30.15	30.10	30.05	30.01	29.96	150.27
Amount above BAU target		-2.45	-3.31	-3.72	-4.13	-4.38	-17.99
% above BAU target		-8.13%	-11.00%	-12.38%	-13.76%	-14.62%	-11.97%

Capital expenditure forecasts

The final recommendations for GWMWater's capital expenditure forecasts for the third regulatory period are outlined in Table 1-7.

Table 1-7 Recommendations for GWMWater's capital expenditure forecast

	13/14	14/15	15/16	16/17	17/18
Urban Water	6.63	9.19	4.72	4.46	7.05
Sewerage	7.03	3.99	6.54	1.91	1.51
Recycled Water	0.04	0.05	0.03	0.14	0.03
Bulk water - headworks	0.60	0.75	1.94	0.74	0.69
Irrigation	2.38	2.38	-	-	-
Bulk Water - Distribution	-	-	-	-	-
Domestic and stock	14.42	3.09	1.65	0.72	2.53
Surface water diversions	0.09	0.09	0.08	0.09	0.06
Groundwater diversions	0.16	0.74	0.81	0.15	0.14
Total forecast capital expenditure	**31.33**	**20.28**	**15.77**	**8.19**	**12.02**
Recommended adjustment for decommissioning of assets	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
Recommended capital expenditure	**32.33**	**21.28**	**16.77**	**9.19**	**13.02**
Net Change	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

Major projects comprising a significant proportion of the total capital expenditure forecast have been assessed as part of this review and have been deemed appropriate in relation to GWMWater's key drivers and obligations. Robust justifications and reasonable cost estimates of works required have been provided by GWMWater for all projects reviewed. The projects reviewed are detailed in Table 1-8.

Table 1-8 Capital projects reviewed

Service area	Project	Driver	Expenditure in Water Plan period ($M 12/13)
Domestic and stock	Intelligent rural pipeline networks	Improved service	$6.5
WMPP	WMP Augmentation	Improved service	$4.6
Urban Water	Treated Water Supply – Donald	Improved service	$3.9
Wastewater	Sewerage Scheme – Rupanyup	Compliance	$3.7

We note that GWMWater has classified expenditure for decommissioning of irrigation channels as capital expenditure rather than operating expenditure to maintain consistency with how expenditure for decommissioning has been categorised previously on the WMP project. We discussed this approach with ESC who advised that they were comfortable that this expenditure be categorised as capital expenditure as it provides a more level impact on customer bills. We recommend that the allowance of $1.0M per annum for decommissioning of non-irrigation channel assets be also allocated as capital expenditure.

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1 Introduction

1.1 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

> The proposed prices, or the manner in which prices will be calculated or otherwise determined, for each of the prescribed services.

The businesses are required to consult with relevant regulators (including the ESC, the Environmental Protection Authority (EPA) and the Department of Human Services (DHS)) and the relevant Minister with respect to those other parties' requirements and expectations prior to submitting their Water Plans to the Commission for the formal assessment against the principles set out in the Water Industry Regulatory Order 2003 (WIRO).

In late October 2012, the ESC received Water Plan 3 setting out, among other things, the proposed expenditure forecasts and prices for the three year period commencing 1 July 2013 from Grampians Wimmera Mallee Water (GWMWater). The plan had been delayed as the business sought to gain certainty over an irrigator led proposal to relinquish water entitlements for the Wimmera Mallee Irrigation District.

The ESC is required to assess the proposals set out in GWMWater's Water Plan 3, consistent with the requirements of the legislative framework. With respect to the businesses' expenditure forecasts, it must be satisfied that, among other things, the forecasts:

> Reflect efficient expenditure

> Are consistent with delivering the required service levels, outputs and obligations over the regulatory period

> Take into account a planning horizon that extends beyond the regulatory period.

In assessing GWMWater's proposed Water Plan, the Commission is required to have regard to its objectives under the *Essential Services Commission Act 2001* including the primary objective to "promote the long term interests of Victorian consumers" [section 8(1)]. Section 4C of the *Water Industry Act 1994* also sets out a number of specific objectives that the Commission must have regard to in regulating the water sector namely:

> Wherever possible, to ensure the costs of regulation do not exceed the benefits

> To ensure regulatory decision making and regulatory processes have regard to any differences in the operating environments of regulated entities

> To ensure regulatory decision making has regard to the health, safety, environmental sustainability (including water conservation) and social obligations of regulated entities.

Further more detailed requirements that the Commission needs to have regard to are set out in the WIRO, made under section 4D of the Water Industry Act. In particular, the Commission must be satisfied that the prices proposed by a water business comply with the regulatory principles outlined in the WIRO. Specifically, the WIRO requires prices to be set so as to, among other things:

> Provide for a sustainable revenue stream to the regulated entity that nonetheless does not reflect monopoly rents or inefficient expenditure by the regulated entity

> Allow the regulated entity to recover operational, maintenance and administrative costs

> Allow the regulated entity to recover expenditure on renewing and rehabilitating existing assets

> Allow the regulated entity to recover a rate of return on investments made after 1 July 2004 to augment existing assets or construct new assets

> Take into account the interests of customers of the regulated entity, including low income and vulnerable customers, in receiving reliable services at affordable prices

> Provide the regulated entity with incentives to pursue efficiency improvements and to promote the sustainable use of Victoria's water resources and enable customers or potential customers of the regulated entity to readily understand the prices charged by the regulated entity for prescribed services, or the manner in which such prices are to be calculated or otherwise determined.

The regulatory principles also require the expenditure forecasts in the Water Plan to reflect the efficient delivery of the proposed outcomes contained in the Water Plan and take into account a planning horizon that extends beyond the regulatory period.

1.2 Scope

Cardno has been engaged by the ESC to undertake an independent review of the expenditure forecasts provided by GWMWater as part of its Water Plan submission for the five year period commencing 1 July 2013 and provide advice on whether the proposed expenditure forecasts are consistent with the requirements of the legislative framework.

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

> Reflect efficient expenditure

> Are consistent with delivering the required service levels, outputs and obligations over the regulatory period

> Take into account a planning horizon that extends beyond the regulatory period.

In undertaking the review, Cardno is required to consider:

> Any guidance issued by the ESC with respect to how it will assess the businesses' proposed expenditure forecasts including the 2013 Water Price Review – Guidance on Water Plans (2011)

> The information set out in GWMWater's Water Plans (and accompanying information templates) and any explanations that the businesses provide with respect to the basis used to derive the forecasts including any assumptions used

> Any readily available data and information that Cardno has access to, to assess expenditure forecasts

> The experience of the Cardno's project team in preparing and assessing the veracity of forecasts as well as costing projects in the water sector.

Review of operating expenditure

The ESC requires advice on GWMWater's operating expenditure, specifically on whether:

> Changes in operating costs are consistent with the timing of major capital projects

> The Commission expects that energy costs, labour costs, IT costs and chemical costs will be a significant focus of the operating expenditure review

> GWMWater is fulfilling its obligations and meeting customer service expectations as cost efficiently as possible, including through the setting of an appropriate target for cost efficiency gains

> Any forecast divergence from historical trends in operating expenditure can be readily explained, for example, by changes in obligations imposed by Government, including technical regulatory and customer service expectations

> One-off costs associated with the drought (for example costs relating to advertising, education and appliance changeover) have been removed.

Review of capital expenditure

The ESC requires advice on GWMWater's capital expenditure, specifically whether the projects reviewed meet the following criteria:

> Appropriate in relation to key drivers and obligations – proposed capital expenditure reflects obligations imposed by Government (including technical regulators) or customers' service expectations

> Robust (with adequate supporting analysis and systems) – as demonstrated by reports which clearly enunciate the service outcomes proposed by the water business, and sets out the analysis undertaken of the options to deliver these outcomes and identifies the preferred approach. Evidence may also be sought to demonstrate that proposed capital expenditure is consistent with efficient long-term expenditure on infrastructure services (based on a best practice asset management framework which considers risk and system-wide needs)

> Deliverable over the regulatory period – demonstrated that the key activities comprising the delivery of the project from planning to construction have been identified and thought through and that the projects can be practically delivered within the proposed timeframe, given the business's delivery of major projects in the past

> Reasonable cost estimate – the cost estimate is well supported either by a schedule of quantities using typical rates currently being experienced in the industry, or compare favourably with other similar projects or preferably both of the above

> Proposed trends in capital expenditure are compared with historical trends in expenditure, to identify the reasons for divergences from historical trends can be identified, together with any other relevant factors

> The business's risk sharing and incentive and penalty payment arrangements with its contractors are based on a symmetrical sharing of risk for delivery or non-delivery of projects.

1.3 Review methodology

Our approach to this review was based around structured interviews with key agency staff. Our review had the following stages:

> Review of information, particularly GWM's Water Plan 3 for the period 2012/13 to 2017/18 and the expenditure information templates provided to us by the ESC

> Development and issue of a Review Plan, which sets out the program, interview themes and information requests

> Detailed interviews with GWMWater staff between the 7 and 9 November 2012

> Preparation of a Draft Report that identifies our preliminary views on GWMWater's proposed expenditure forecasts and the nature of further work and investigation that will be undertaken

> Accept comments on the Draft Report

> Issue of a Final Report that identifies our final view on GWMWater's proposed expenditure forecasts.

We found that GWMWater staff responded in a professional and cooperative manner to this review.

2 Profile of GWMWater

2.1 Overview of GWMWater

Grampians Wimmera Mallee Water Corporation (trading as GWMWater) is a government-owned Statutory Corporation established on 1 July 2004 under the Water Act 1989. It provides a range of services including:

> Urban water supply to approximately 32,000 properties spread throughout 71 towns

> Sewerage services to 25 of the 71 towns

> Rural water supply to approximately 14,600 properties. These services include irrigation water and stock and domestic water

> Managing groundwater and river diversions in tis operating area

> Managing eight bulk water storages, including recreational access.

GWMWater has approximately 213 staff that serves a population of around 72,000 in the west of Victoria. It has revenue of about $42 million per year and assets with a current replacement cost of approximately $2.25 billion.

In the north of its operating area, GWMWater sources some water from the Murray River.

The business has been fundamentally changed in recent years by the construction of the Wimmera Mallee Pipeline (WMP). The WMP is a network of over 9,000km of pressurised pipes that have replaced around 18,000km of earthen channel that were used primarily for stock and domestic supply. Through the supply efficiencies gained, water has been returned to the environment and also set aside for future growth in the region.

2.2 Governance and organisational structure

The State Government appoints a Board of directors to oversee the direction of the business. The operation of GWMWater is the responsibility of the Manager Director, supported by four Executive Managers. The areas of responsibility of the Executive Managers are:

> Business performance and risk

> Stakeholder services and governance

> Service Deliver

> Sustainable water and infrastructure.

The structure, and associated functions of the sections of the organisation, is outlined in Figure 2-1.

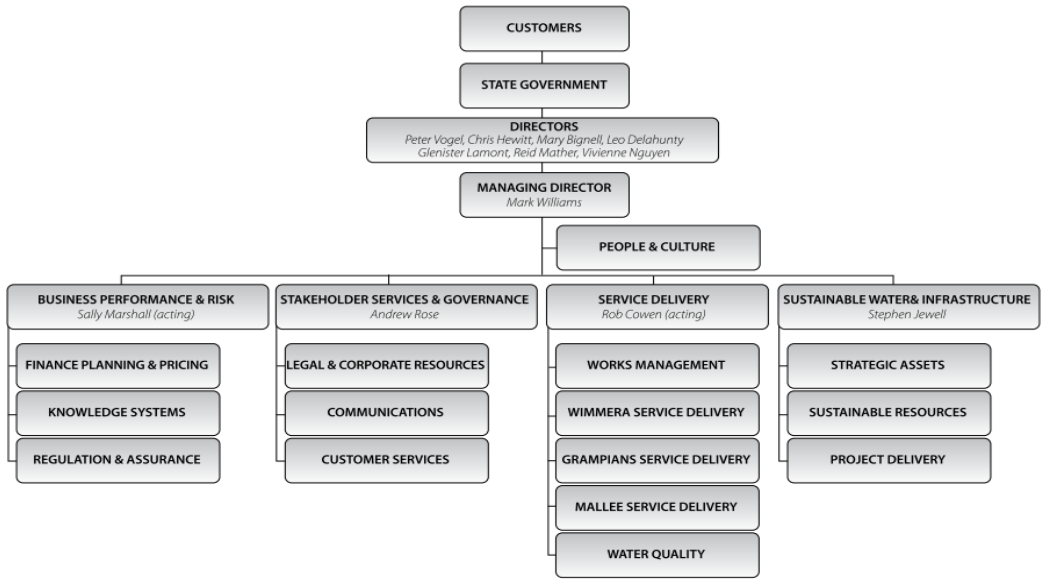

Figure 2-1 Organisational structure

Source: GWMWater Annual report 2012

2.3 Changes in service standards

GWMWater has proposed changes to its service standards for the Water Plan 3 period to reflect both its performance in the current regulatory period and the anticipated improvement in service in some areas resulting from investment in the next regulatory period. GWMWater proposes lower service quality in some areas where it believes that the existing target is not sufficiently valued by customers.

The areas where GWMWater proposes changes to service standards are summarised in Table 2-1.

Table 2-1 Proposed changes to service standards

Service standard	Existing target	Current performance (5yr avg.)	Proposed target	Comment
Urban water delivery				
Rate of unplanned urban water supply interruptions per 100km of main	40	29	2013/14 to 2014/15: 40 2015/15 to 2017/18: 30	The improved target for the last three years of the period reflects current performance
Average time from notification to attend urban water bursts and leaks (minutes) - Priority 2	60	28	40	Current performance suggests this target can be improved without additional cost
Average time from notification to attend urban water bursts and leaks (minutes) Priority 3	60	30	40	Current performance suggests this target can be improved without additional cost
Planned water supply interruptions restored within 5 hours (%)	95%	97%	97%	The target is proposed to be improved in line with current performance. A GSL is also proposed.
Average planned customer minutes off water supply	12	40	30	GWMWater notes that time off water has increased in line with its expanded program for air scouring to clean water mains. It notes that customers prefer water quality over minor interruptions.
Average frequency of planned water supply interruptions (number)	0.05	0.23	0.3	As above, GWMWater proposes to prioritise water quality over supply continuity

Service standard	Existing target	Current performance (5yr avg.)	Proposed target	Comment
Level of Unaccounted Water (%)	10%	29%	12%	GWM proposes a slightly relaxed target that is a significantly higher standard than its current performance. It does not propose additional expenditure to meet this standard.
Urban sewerage				
Rate of sewerage blockages per 100km main	36	35	2013/14 to 2015/16: 36 2016/17 to 2017/18: 25	GWMWater expects its performance to improve due to sewer replacement and maintenance and therefore has proposed an improved standard for the last two years of the regulatory period
Average time to rectify a sewer blockage (min)	180	124	130	The target is proposed to be improved in line with current performance. A GSL is also proposed.
Proportion of spills contained within 3 hours - Priority 1 (%)	98%	94%	97%	GWMWater propose a slightly lesser standard noting that their service standard is already higher than most of the industry as it refers a 3hr response time compared to a 5hr response time elsewhere
Rural service				
Processing and determination of various licence and service applications within certain timeframes	80%	100%	100%	The target is proposed to be improved in line with current performance
Rural pipeline				
Unavailability of D&S Supply Systems for continuous periods in excess of 72 hours (%)	2%	N/a	2.5%	Customers are required to install on-site storage for 3 days meaning that service interruption does not have significant impact
Number of rural pipeline bursts and leaks per 100km of pipeline	10	1	1	The target is proposed to be improved in line with current performance. The WMP should also improve performance
Unaccounted rural water (%)	8%	15%	10%	We anticipate that unaccounted for rural water should greatly improve with the operation of the WMP. The pipeline requires monitoring to fully appreciate unaccounted water

Source: GWMWater Water Plan 2013-2018, Appendix 2

We believe that the service standards proposed are a good balance of cost and service to customers. We note that most service standard improvements do not have specific expenditure associated with the marginal improvement but instead reflect current performance above existing targets. An exception is for sewerage service interruptions where GWMWater believes its investment program will improve service levels. We believe that this approach to setting service standards reflects a sound understanding by the business of its customer's priorities.

2.4 Asset base

GWMWater own assets with a total current replacement cost (CRC) of $2,257M as at 30 June 2011. This total value includes the WMP assets which were valued at their construction cost indexed to the valuation date. Figure 2-2 summarises GWMWater's asset base.

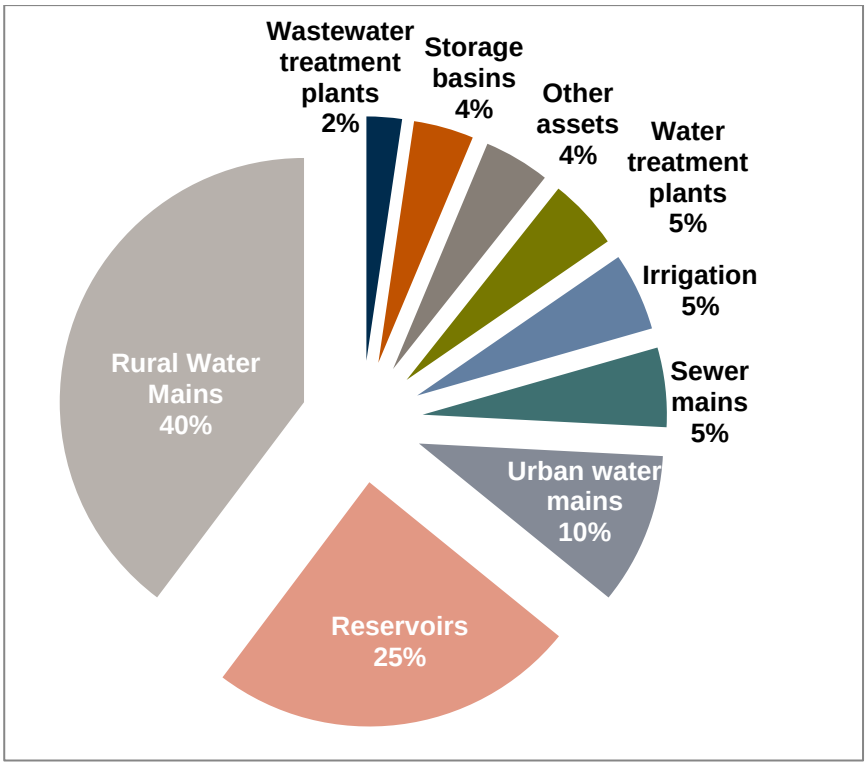

Figure 2-2 Asset Value (%) by type of asset

This analysis shows the diversity of the assets under GWMWater's control which span the complete urban water cycle in addition to the rural water distribution assets. These rural water mains, which include the WMP, comprise the largest asset class by value, accounting for around 40% of the total asset base. GWMWater recognises that the WMP has fundamentally changed its asset base and therefore, its priorities for asset management must also change accordingly.

2.5 Benchmarking

To inform our opinion of GWMWater's performance and efficiency, we have benchmarked the organisation against similar water utilities drawing on the comparative information published by the National Water Commission in its National Performance Reports. We have only compared GWMWater's urban services.

We recognise the limitations of benchmarking resulting from the varied circumstances of each utility, particularly the scope of their operations and their varying size and hence their differing ability to achieve economies of scale. Therefore, we have only made high level observations on the basis of this data. We have selected a sample of utilities of similar size and scope of operations.

The metrics presented and the observations drawn from each is summarised in Table 2-2.

Table 2-2 Observations from benchmarking of GWMWater's urban services

Figure	Benchmark metric	Observation
2-2	Water main breaks per 100km of water mains	GWMWater has high rates of water main breaks compared to the comparator organisations. However, its rate is similar to that of the nearby Lower Murray Water. We note in our discussion regarding Service Standard in Section 2.3 that GWMWater prioritises water quality over supply continuity
2-3	Sewerage main breaks and chokes per 100km of main	GWMWater has significantly decreased its rate of sewerage main breaks over the two years and is around the middle of the pack compared to the other utilities.
2-4	Water losses	GWMWater's real losses are around the mid-range for the sample. This indicator has displayed an unusual trend over the period.
2-5	Water operating costs per property	GWMWater has the highest operating costs per property for water services. However, as noted below, it has the lowest operating cost per property for sewerage services.
2-6	Sewerage operating costs per property	GWMWater has the lowest operating cost per property for sewerage services amongst the sample of utilities. However, as noted above, its operating cost per property for water services is the highest.
2-7	Average annual residential water supplied per property	GWMWater has supplied between 161kL to 199kL of water per annum to residential properties over the three years. This period includes both wet and dry years .
2-8	Sewage collected per property	GWMWater has the lowest volume of sewage collected per property amongst the sample utilities. This is likely to be due in part to the relatively dry climate.
2-9	Water quality complaints	Water quality complaints have increased over the review period and GWMWater now has the highest rate of complaints in this area. This is likely a result of the deterioration in the water quality in GWMWater's storages following the recent floods. GWMWater has found it difficult to find a lasting solution to these water quality problems.
2-11	Water capital expenditure per property	GWMWater has relatively low capital expenditure per property on water services over the 3 year review period
2-10	Sewerage capital expenditure per property	GWMWater has relatively low capital expenditure per property on sewerage services over the 3 year review period

The graphs for each benchmark metric are shown following.

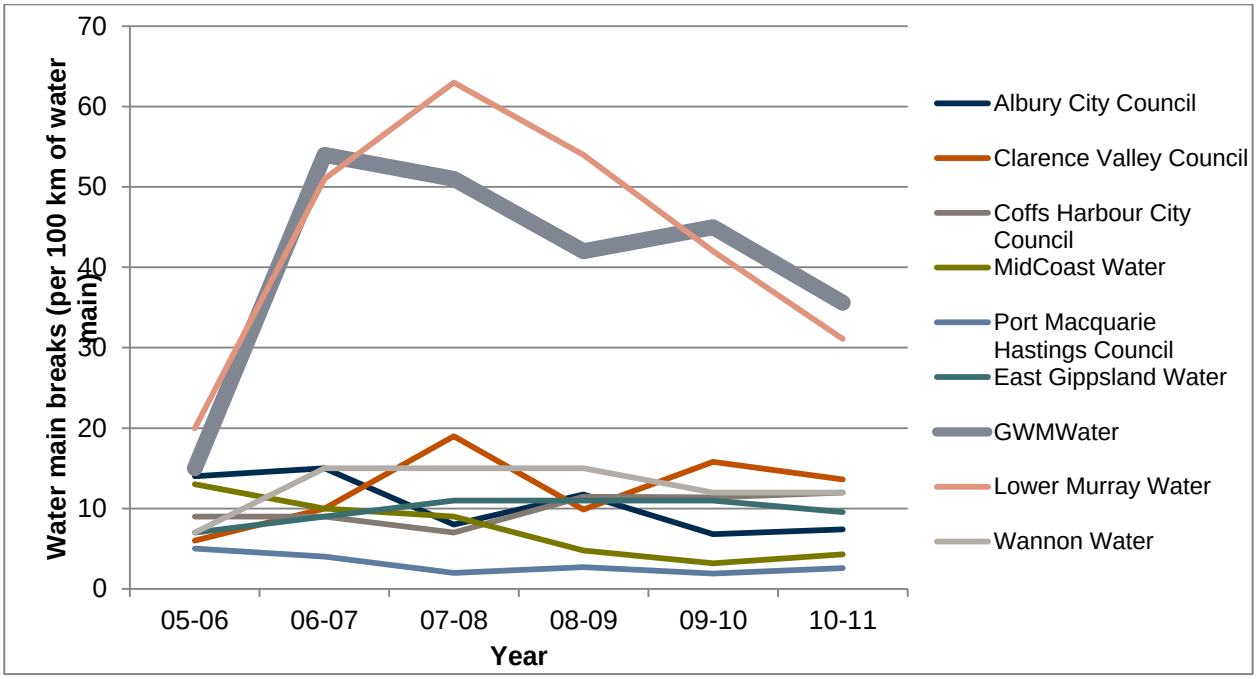

Figure 2-3 Water main breaks per 100 km

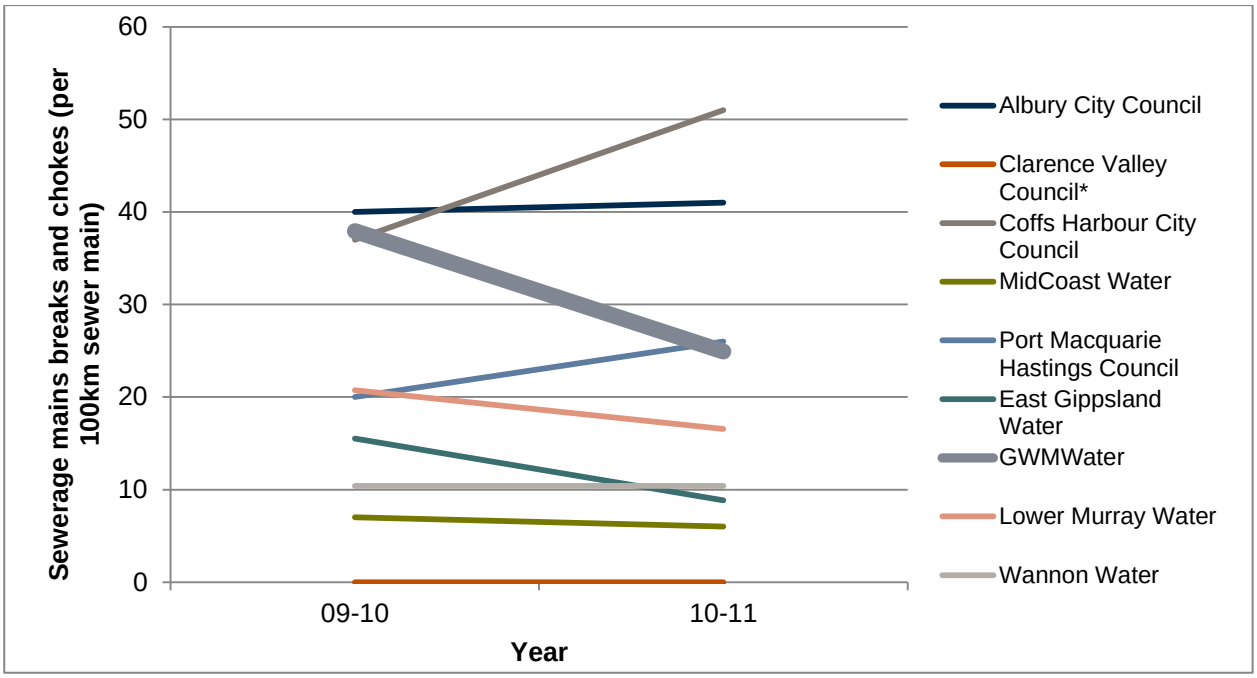

Figure 2-4 Sewerage main breaks and chokes per 100 km

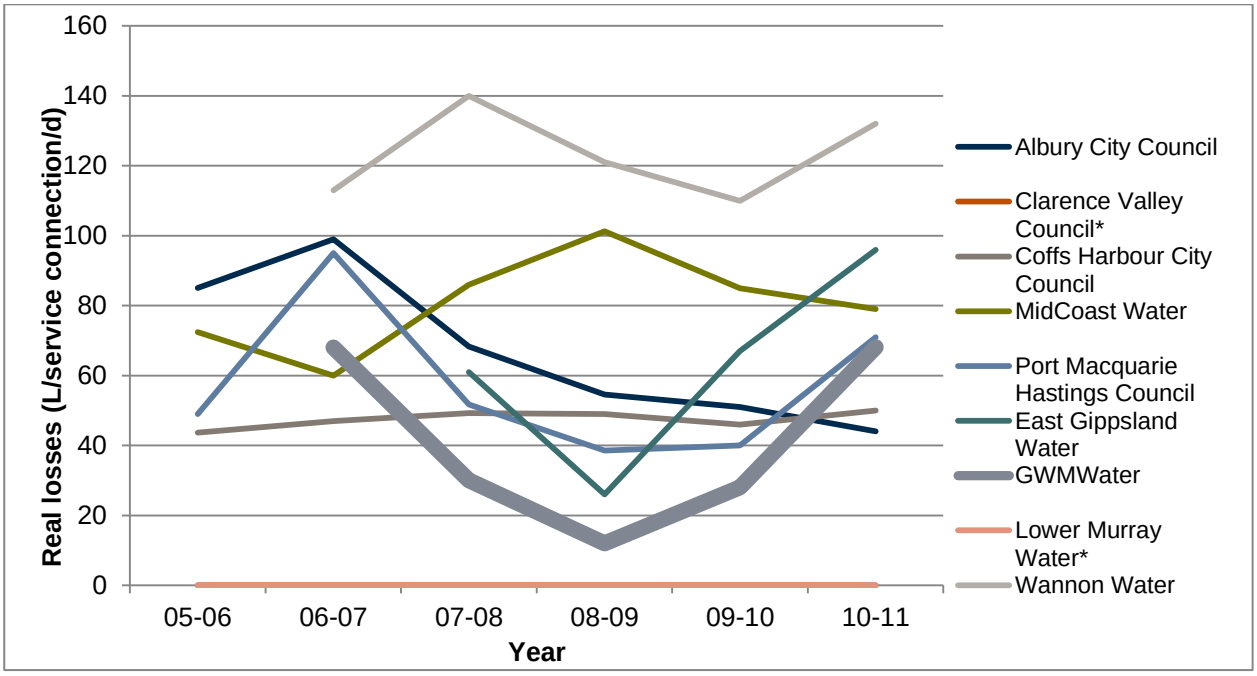

Figure 2-5 Water losses

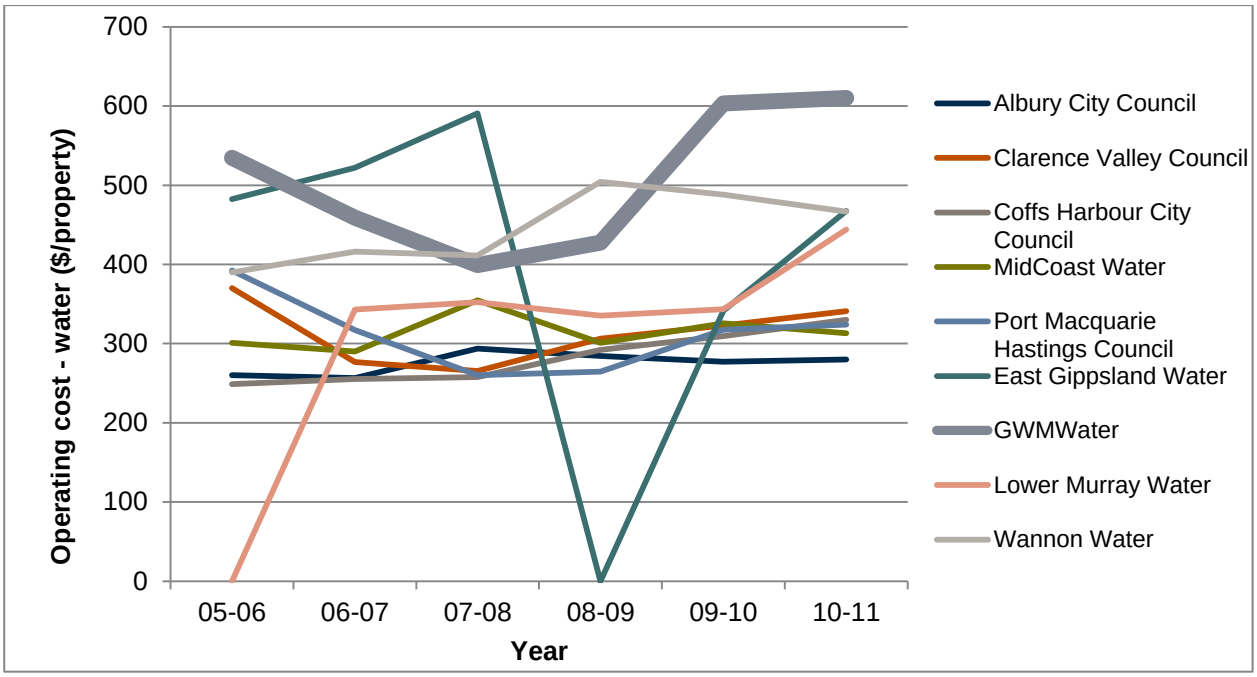

Figure 2-6 Water operating costs per property

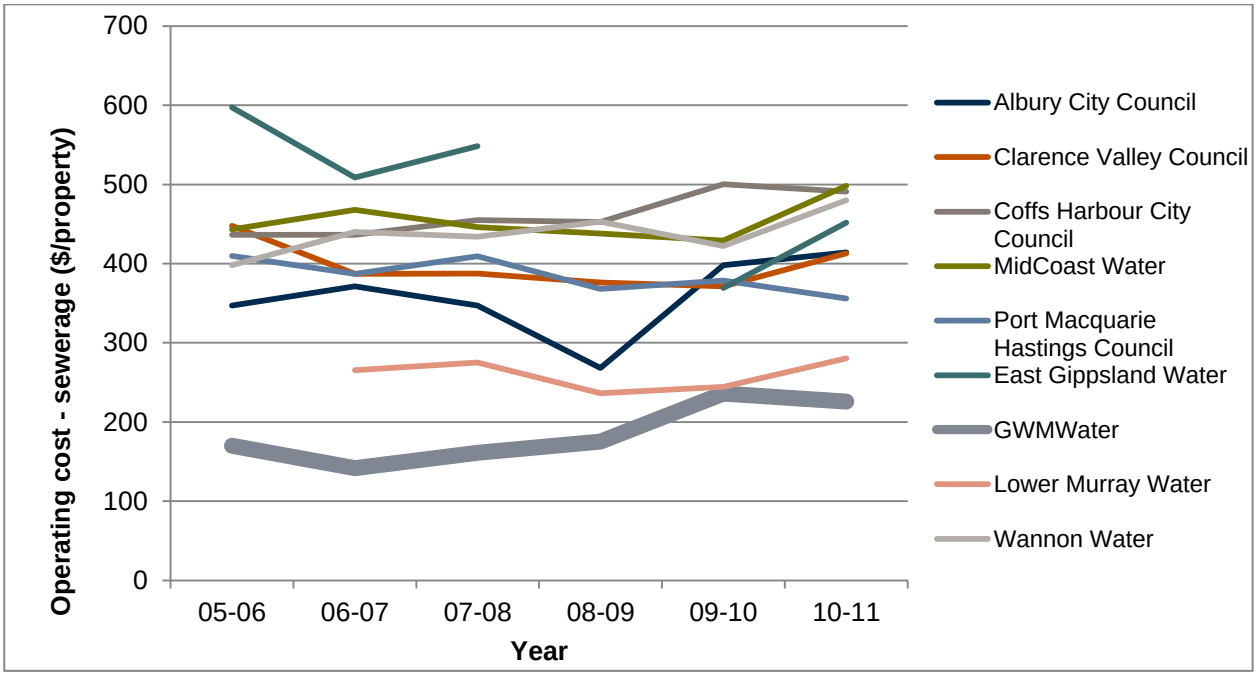

Figure 2-7 Sewerage operating costs per property

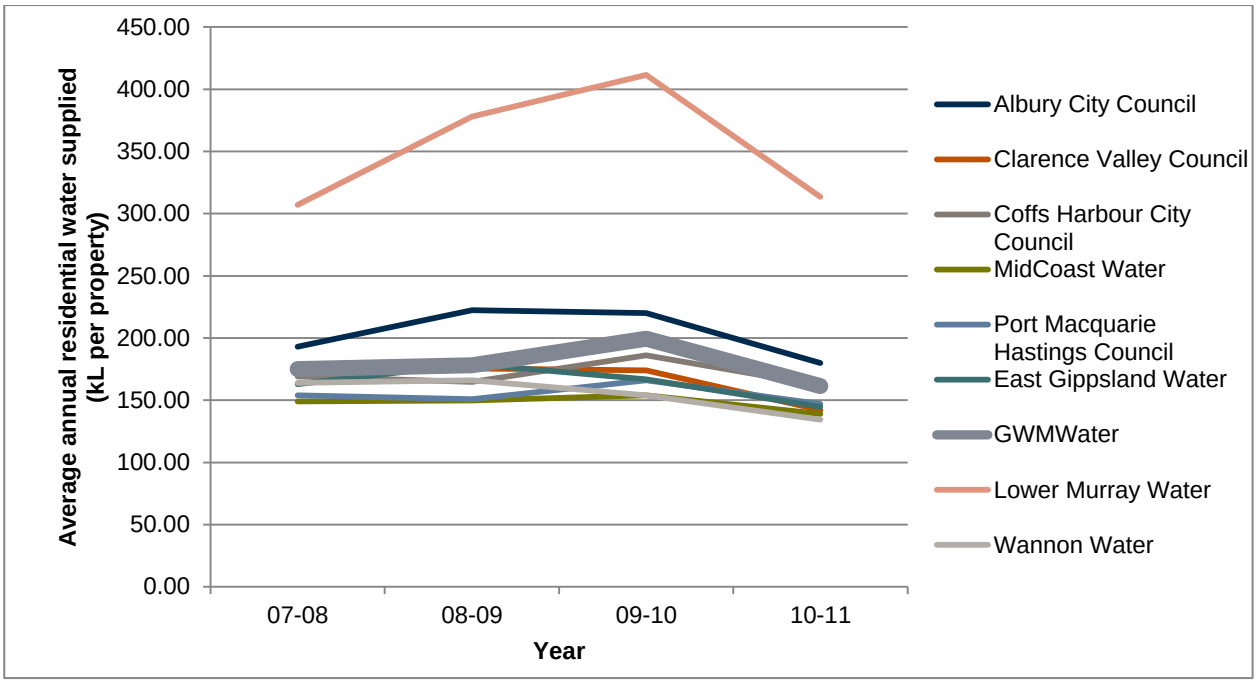

Figure 2-8 Average annual residential water supplied per property in 2010/11

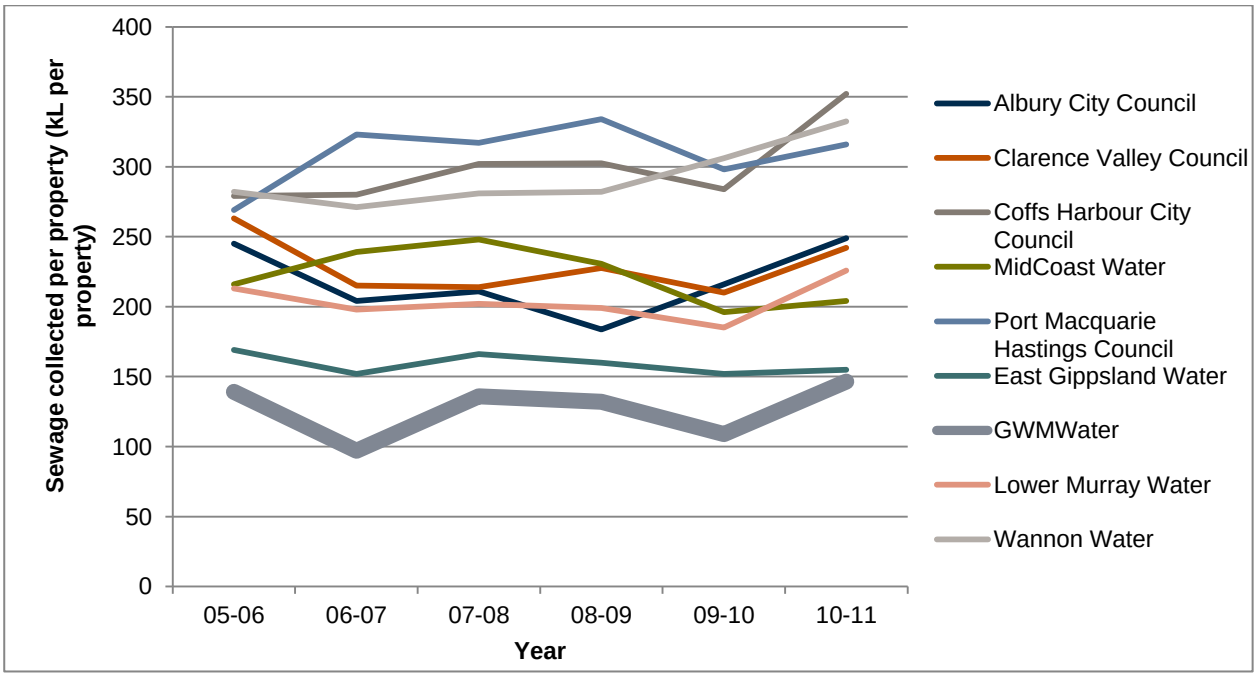

Figure 2-9 Sewage collected per property in 2010/11

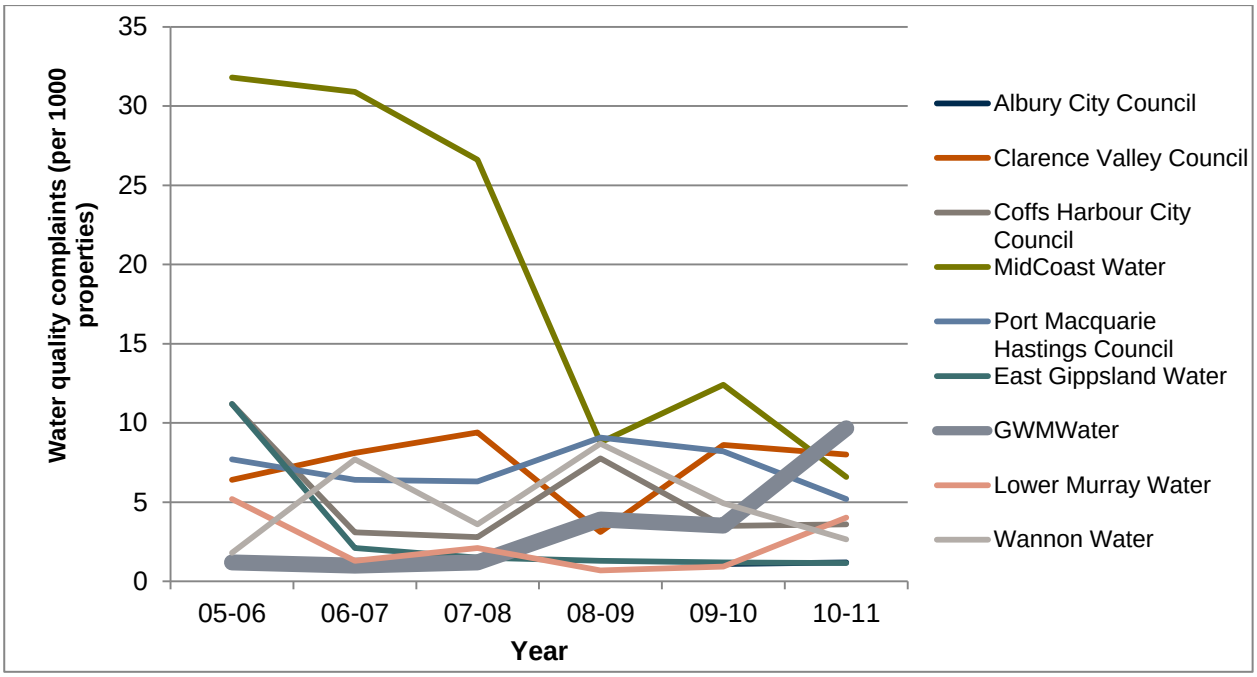

Figure 2-10 Water quality complaints

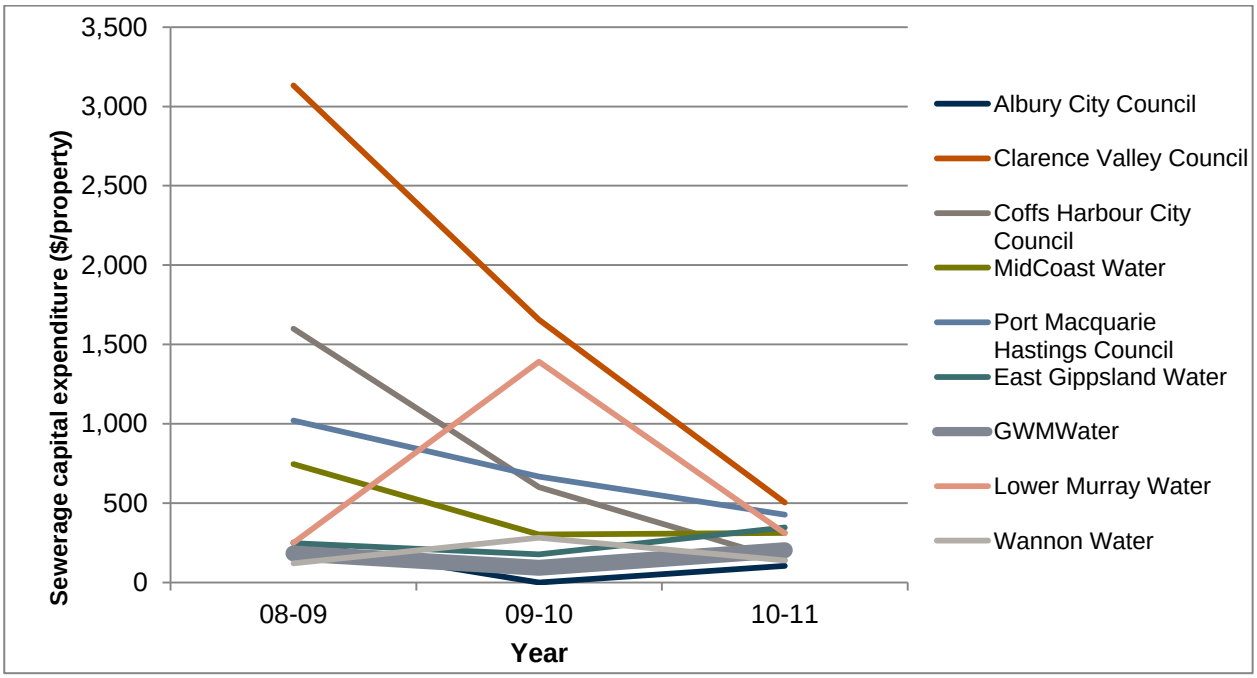

Figure 2-11 Sewerage capital expenditure per property

2.6 Issues and challenges

The challenges facing GWMWater over the coming regulatory period include:

> Integrating the WMP into business as usual practices and procedures. This includes recognising the opportunities that the upgraded pipeline infrastructure represents to the business such as operating efficiencies, reduced water loss and a significantly better condition of the distribution system for rural water

> Continuing to realise operating efficiencies through structural changes and better practices

> Delivering quality water to urban customers and in particular, finding long term measures to address the reduced water quality in some catchments that occurred following the recent floods.

GWMWater recognises, and has made a central theme of its Water Plan, the opportunities that the WMP presents for its business. Throughout our review, we have sought to test GWMWater's assumptions about the degree that which it can exploit these opportunities over the coming regulatory period.

2.7 Key outcomes identified in Water Plan 3

GWMWater sees the Water Plan 3 as an opportunity to consolidated its operations and realise the benefits to customers presented by the WMP and its other investments. During the coming regulator period, it proposes to:

> Use unspent funding for the WMP on ancillary infrastructure to provide greater functionality and benefit from the pipeline

> Upgrade of the water supply to the towns of Wycheproof, Donald, Minyip and Rupanyup to drinking water quality

> Provide sewerage for the first time to the towns of Lake Bolac and Great Western

> Upgrade existing wastewater treatment plants at Dimboola and Donald

> Generate productivity savings of 2% per annum to moderate customer costs.

3 Asset management and project delivery

As part of our review, we took into consideration GWM's asset management practices in relation to their potential impact on their opex and capex projections. Key relevant information and observations are noted in the following sub-sections.

3.1 Asset management information systems

GWMWater utilises Technology One as its central business system. The business functions that are managed through this system include:

> Enterprise budgeting

> HR and payroll

> Inventory

> Procurement

> Billing.

Asset management information has previously been stored in a Hansen platform. However, GWMWater is now transitioning to the 'works and assets' module of Technology One. This transition is expected to be complete at the end of the 2012/13 financial year.

In addition to Technology One, GWMWater also utilises the following systems:

> TRIM for document management

> A SCADA for operations monitoring

> GIS.

GWMWater believes that it will gain efficiencies from the consolidation of its information systems and in particular the move to the 'works and assets' module of Technology One. It sees a major benefit as being the ability to capture, process and report on data only once from a single source.

3.2 Progress in addressing recommendations of asset management audit

An asset management regulatory audit of GWMWater was undertaken in late 2011. The audit found that GWMWater's "asset management system is sufficient to ensure the base level of management is achieved, however the processes, procedures and business support systems require further development to better the support the required level of planning, ongoing management and decommissioning of the organisation's assets into the future."

The audit made the following summary observations and recommendations:

> ***Corporate Policy and Planning***

Corporate policy and planning is heavily reliant on the Asset Management Plan which addresses asset planning and acquisition, operations, maintenance and capital programs. The plan has been developed in the last 12 months, and while still in draft, is unlikely to change significantly from its current state. Whilst the Asset Management Plan provides a 30 year framework to asset management, this could be more effective in relation to asset maintenance, planning and contingencies if coupled with supporting Asset Management Plans for asset classes that are critical to the organisation's service delivery.

> ***Asset Capability Planning***

Asset Capability Planning is performed with reference to the customer charter, which defines levels and standards of service delivery. These levels and standards of service are governed by requirements of various departments and agencies, including the Essential Services Commission, the Environmental Protection Agency and the Department of Health. This process could be further strengthened by using

information gleaned from current discussions held with community groups which identify service level requirements to advance asset management planning.

> ***Asset Acquisition***

Asset acquisition is overseen by the board sub-committees, the Environmental and Works Committee and the Audit Governance and Risk Committee. Additionally, the organisation created specific project committees to strengthen governance and oversee the construction of the Wimmera Mallee Pipeline.

Asset acquisition is supported by a 'triple bottom line' risk assessment incorporating financial (including a Net Present Value assessment), social and environmental elements. Each project is prioritised given the overall risk reduction or the risk reduction per dollar spent. This analysis enables GWMWater to effectively select projects for implementation.

The implementation of selected projects is supported by the Investment Management Framework. This framework supports seven stages of development, implementation and project review. Whilst it does support the process, there is some documentation yet to be developed to ensure the framework elements are effectively and consistently managed.

> ***Asset Operation***

Asset operation is supported by broad contingency plans that address unexpected organisational circumstances. Contingencies impacting asset operation, and therefore organisational service delivery, can be further strengthened by detailed individual contingency plans for assets critical to the organisations operations.

> ***Asset Maintenance***

Data for failures relating to nonlinear assets is not recorded and therefore cannot measure performance asset or proactively manage maintenance tasks. This does not allow for the organisation to plan or suitably justify some maintenance tasks. Additionally the current asset management information system does not allow for the effective capture or analysis of maintenance data. We understand that GWMWater are investing in a new asset management system which will allow a more effective capture of maintenance data and allow for more efficient preventative maintenance of assets.

> ***Asset Replacement/Rehabilitation***

The development of the Wimmera Mallee Pipeline has resulted in a number of channel systems, tanks and reservoirs that are due to be decommissioned, making up the bulk of the assets that were addressed during the year. Specific focus has been placed on the decommissioning of channel system assets, due to the prevalence and public safety exposure of this defunct asset group. Channel system assets to be retired have been risk rated to determine the higher risk components which were then addressed as a priority. Where channels to be decommissioned were of a lower risk, community consultations with land owners were held to determine a mutually agreeable action to deal with such assets; including the transfer of channel ownership to land owners or allowing land owners to seal the channels themselves. This approach has meant that there is limited budget allocation to alternate asset structures requiring decommissioning, such as reservoirs and tanks.

> ***Business Support Systems***

The organisation has two systems to support the asset management function. These include a Geographic Information System (GIS) to capture the location of GWMWater assets, and the Hansen Asset Management System, an asset management application that hosts the asset register and serves as the source of data for the details of asset ownership. This program has been utilised to capture any adjustments to value and life expectation and some maintenance data related to linear assets. Due to the requirement to better understand the whole of life costs of different assets and better manage maintenance programs more effectively, the organisation has elected to upgrade this application. The intention of the upgrade is to utilise optimisation methodologies by modelling the historical data to predict asset life expectancy, better understand whole of life costs and maintenance planning with the view to increase the functional value of assets on hand.

On the basis of our review, which was not specifically focused on the elements of asset management, we agree with the above observations and recommendations. We found that for the size of the organisation and the asset base, that GWMWater's asset management practices are appropriate. We believe that GWMWater has a strong customer focus which helps it establish sound priorities for its business.

We note that GWMWater has not proposed significant expenditure for asset renewal. It instead sees the Water Plan 3 period as a time where it can collect more asset condition and performance information to enable it to make better investment decisions in future regulatory periods. We support this prudent approach adopted by GWMWater.

3.3 Capital delivery processes

GWMWater has in place an 'Investment Management Framework' to aid in the identification and delivery of capital projects. This framework has seven distinct stages culminating in project review. The asset management audit found that "w*hilst some elements of supporting documentation within this framework still require development, this process provides structure over implementation of projects"*

Central to the development of each capital expenditure item is a business case which includes the justification for the project. The Business Case also includes a whole of life cycle cost analysis of competing which is used to select the preferred option. In our review of a sample of capital projects (see Section 5.5), we found that the options analysis and cost analysis undertaken was sound.

GWMWater has a prioritisation methodology that scores projects on social, environmental and financial criteria. The specific criteria employed are:

> Community/Stakeholder Expectations

> Legislative/Regulatory Requirements

> Public Health/Employee Safety

> Environmental Impact/Sustainability

> Level of Service

> Financial Impact/Return on Investment.

The financial criterion is treated separately. While we acknowledge that this triple-bottom line style approach provides a useful framework for qualitatively comparing the benefits of different expenditure options, we believe that GWMWater should revisit this process and consider the following:

> Incorporation of how the expenditure impacts on business risk

> Inclusion of a mechanism for exempting projects that the organisation is legally obliged to undertake from the prioritisation.

In practice, we are not concerned about the application of this prioritisation methodology in determining the Water Plan 3 capital program. This is because we have seen from the projects that we have reviewed that GWMWater carefully weighs its investment priorities at the senior management level and its opinion is informed by considerable customer consultation.

3.4 Cost estimating processes

GWMWater uses a number of different sources to inform its cost estimates for the forward capital program including:

> Historic costs

> Estimates from design consultants

> Engineering estimates.

GWMWater uses internal rates for indirect costs (including project management, engineering services and overheads) based on costs historically incurred. GWMWater has provided only P_{50} estimates for its capital expenditure. These estimates have used a Monte Carlo approach to estimate project risk.

We found that GWMWater has a culture of challenging capital project costs so that it can identify the lowest cost option to meet the service need. This is evident for example in its decision to move away from the centralised water treatment option recommended to it by a consultant and instead propose localised network upgrades.

We have benchmarked GWMWater's rates for common construction activities and found them to be reasonable.

We observed that GWMWater uses procurement effectively to gain cost efficiencies, for example through the use of the State-wide procurement service.

4 Operating expenditure

4.1 Methodology

The review of GWMWater's historic and forecast operating expenditure (opex) was based on interviews with GWMWater staff, analysis of data provided and consideration of the following documents:

> Water Plan 3 Submission

> Water Plan 3 Financial Template

> Information provided by GWMWater staff in response to interview questions and requests for clarification or supporting material.

4.2 Operating expenditure in current price path

GWMWater's operating expenditure in the current price path is summarised in Table 4-1. The expenditure shows a peak in 2011/12. However, considering the components of operating expenditure, most components show a declining trend over the current price path. The exceptions being:

> Urban water, which peaked between 2010/11 and 2011/12. This increase in costs is mostly attributable to increased costs to treat poor quality water. The quality of the water was impacted by floods which resulted in fine sediments becoming suspended in GWMWater's main storages. The fine sediments were not readily removed by traditional treatment processes

> Bulk water-headworks which appears negative due to this item being used for internal costs transfers between bulk water, urban water and domestic and stock water.

Table 4-1 Operating expenditure in current price path ($12/13)

	$M				
	08/09	09/10	10/11	11/12	12/13
Urban Water	15.81	17.60	19.06	19.24	16.95
Sewerage	4.78	6.09	5.11	5.84	6.45
Recycled Water	0.31	0.37	0.36	0.36	0.29
Waterways	-	-	-	-	-
Diversions	-	-	-	-	-
Bulk water - headworks	(3.78)	(5.90)	(6.02)	(4.67)	(2.31)
Irrigation	0.68	0.32	0.31	0.30	-
Bulk Water - Distribution	-	-	-	-	-
Domestic and stock	9.10	9.27	9.02	9.48	7.49
Surface water diversions	0.29	0.32	0.28	0.17	0.22
Groundwater diversions	0.81	0.88	0.71	0.92	0.62
Total Business as Usual	**28.00**	**28.95**	**28.83**	**31.64**	**29.71**
New initiatives and obligations					
External bulk water charges (excl. temporary purchases)	-	-	-	-	-
External temporary water purchases	0.36	0.23	-	-	-
Licence fees	0.22	0.17	0.12	0.11	0.15
Environment Contribution	1.46	1.43	1.39	1.34	1.32
Total prescribed opex	**30.04**	**30.78**	**30.34**	**33.09**	**31.18**

Operating expenditure in the current price path has been higher than forecast by GWMWater at the time of the last Determination. The underlying drivers for increased operating costs over forecasts include:

> Drought conditions at the beginning of the Water Plan 2 period which led to increased costs for water carting, temporary water purchases and labour costs. These costs were offset to some extent by decreased electricity costs

> Severe flooding in early 2011, the primary impact of which was a significant deterioration in the water quality in GWMWater's main storage, the Belfield Reservoir. GWMWater had to use increased levels of treatment to manage water quality.

Costs in 2011/12 were also high due to GWMWater making a $1.4M funding contribution to its superannuation scheme operated by Vision Super. The contribution was required to meet a shortfall in funding of defined benefit payments. We queried the basis on which GWMWater made this payment. GWMWater noted that the payment terms offered by Vision Super were a 7.5% discount on the amount if paid before 1 July 2013 and a 7.5% interest rate if paid after this date. GWMWater's borrowing costs are such that it determined that it would be cheaper to borrow the required funding and payback the loan over a period of time. We agree that GWMWater has selected the lowest net present cost option to meet its funding contribution requirements. Note that although the payment will be made in the 2012/13 financial year, the expense is accounted for in the 2011/12 financial year which is when the invoice was received.

GWMWater has also reduced its operating expenditure in some areas over the Water Plan 2 period. Notably, stock and domestic operating expenditure is forecast to decrease significantly in 2012/13 as the benefits from the WMP are realised. The other main area where GWMWater has gained efficiencies in the period is through the increased use of SCADA to allow remote monitoring and control of treatment and distribution assets.

4.3 Determination of baseline operational expenditure

GWMWater has developed its forecast opex by adjusting its 2011/12 actual expenditure to formulate a baseline figure that is representative of business as usual. Table 4-2 below reconciles the 2011/12 actual opex to its 2011/12 baseline opex.

Table 4-2 Reconciliation of 2011/12 actual opex to baseline opex

	$M
Adjustment	**Amount**
Actual 2011/12 Business as Usual Opex	31.64
Adjustment for superannuation contribution	(1.40)
Baseline 2011/12 Business as Usual Opex	**30.24**

The ESC requires scrutiny of the operating expenditure base year 2011/12 as this is the reference point for expenditure in the future regulatory period, including for calculation of efficiency gains.

GWMWater has made one adjustment, of $1.4M for the superannuation funding discussed above, to the expenditure incurred in 2011/12 ($31.64M) to arrive at the business as usual operating expenditure net of transitory costs of $30.24M.

We scrutinised the expenditure incurred by GWMWater in 2011/12 and did not identify any other abnormal cost items. By 2011/12, the prolonged drought conditions had eased in GWMWater's operating areas and the severe flood occurred in early 2011, i.e. the 2010/11 financial year. GWMWater had some high ongoing costs for treating poor quality water in 2011/12 that were due to the 2011 flood. However, the poor quality water is persisting into the present time. We discussed this issue at length with GWMWater and reviewed the research and investigation that the business has undertaken and is ongoing into modified treatment processes. We are satisfied that these higher costs will continue for the foreseeable future and therefore should be considered a business as usual expense.

4.4 Operating expenditure in future price path

GWMWater's operating expenditure in the future price path is summarised in Table 4-3. For the next price path GWMWater is forecasting declining operating expenditure. The increased operating expenditure for new initiatives is forecast to be more than offset by cost savings in other areas of the business, most notably domestic and stock water provision where the benefits from the WMP will be gained.

Table 4-3 Operating expenditure in future price path

				$M			
	Current Price Path			Future Price Path			
	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Urban Water	19.24	16.95	17.13	17.36	16.98	17.29	17.35
Sewerage	5.84	6.45	6.32	5.49	5.60	5.56	5.46
Recycled Water	0.36	0.29	0.30	0.30	0.30	0.29	0.29
Bulk water - headworks	(4.67)	(2.31)	(2.45)	(2.57)	(2.64)	(2.99)	(3.20)
Irrigation	0.30	-	-	-	-	-	-
Domestic and stock	9.48	7.49	7.06	6.92	6.85	6.83	6.84
Surface water diversions	0.17	0.22	0.23	0.23	0.23	0.22	0.22
Groundwater diversions	0.92	0.62	0.58	0.59	0.59	0.52	0.52
Total Business as Usual	**31.64**	**29.72**	**29.17**	**28.33**	**27.91**	**27.73**	**27.48**
New initiatives and obligations	-	-	1.75	1.82	2.15	2.23	2.28
Licence fees	0.11	0.15	0.15	0.15	0.15	0.15	0.15
Environment Contribution	1.34	1.32	1.70	1.70	1.70	1.70	1.70
Total prescribed opex	**33.09**	**31.19**	**32.77**	**32.01**	**31.92**	**31.82**	**31.61**

We reviewed in detail the operating expenditure forecasts provided by GWMWater. The business's methodology for developing these forecasts provides transparency in the assumptions made. The reasons for variances in costs can be readily identified. We discussed each of the major variances with GWMWater. These major variances are:

> $1M per annum for decommissioning of urban water and sewerage assets such as earthen storages and water towers. This is a new expenditure item and is the largest positive variance in the expenditure forecasts. We reviewed the rationale behind this expenditure in detail and found that GWMWater had already delayed this expenditure beyond the timing that we believe other water utilities would undertake the work in. These assets which are not in use present a health and safety risk and require a small amount of ongoing maintenance to keep them safe. GWMWater provided to us the Board paper in support of this investment as well as a prioritised list of assets to be decommissioned. We believe that this expenditure is justified and note that GWMWater has identified this expenditure as a source of some future cost savings. However, we recommend that this expenditure be re-allocated as capital expenditure to provide a more level impact on customer bills and to be consistent with the allocation of expenditure for channel decommissioning associated with the WMP

> Increased costs as new water and sewerage schemes are commissioned. However, these costs are not significant

> Electricity price increases of 4% per annum, equating to a real increase of 1.25% per annum. GWMWater has two electricity contracts – one contract for all of its large sites which expires in December 2014 and a contract for small sites which expires in June 2013

> Productivity gains which have been forecast as a percentage of total operating expenditure.

The overall declining profile for operating expenditure proposed by GWMWater demonstrates that it has applied considerable challenge to its costs to identify savings and to minimise the impact of increases on customers. In our review of the variances proposed for the forward regulatory period, we could not identify an expenditure that was unjustified. We also trailed the proposed timing of operating expenditure relating to capital projects and found that it was consistent with the timing of the completion of the associated capital project.

Benchmarking of operating costs

We have benchmarked GWMWater's expenditure on total operating expenditure, labour, electricity and IT since 2008/09 and forecast to 2022/23 against the costs of Goulburn-Murray Water (G-MW), Lower Murray Water (LMR) and Southern Rural Water (SRW). The source data is that provided by each business in its Water Plan 3 spreadsheet to the ESC. To compare the rate of growth we have we have brought each indicator to a common level (100) in the base year (2005/06, 2008/09 or 2009/10).

Operating expenditure

Figure 4-1 shows that GWMWater has forecast to have the lowest increase in operating expenditure over this period. Its change in operating expenditure to the end of the Water Plan 3 period will be significantly lower than the other utilities over this time.

Figure 4-2 indicates that GWMWater to date has achieved reduction in FTEs of 10% of its 2008/09 level, a reduction matched by LMW. By the end of the Water Plan 3 period, GWMWater expects a further 10% reduction in FTEs which will make its relative staffing levels much lower than the other two utilities using 2008/09 as a reference point. While total FTEs will decrease over the coming regulatory period, costs per FTE, as shown in Figure 4-3 will increase significantly faster than the rate at LMW but less than the rate of G-MW. The increase is due in part to wage increases above CPI and changed skill level for staff as the business undertakes more automation and remote monitoring.

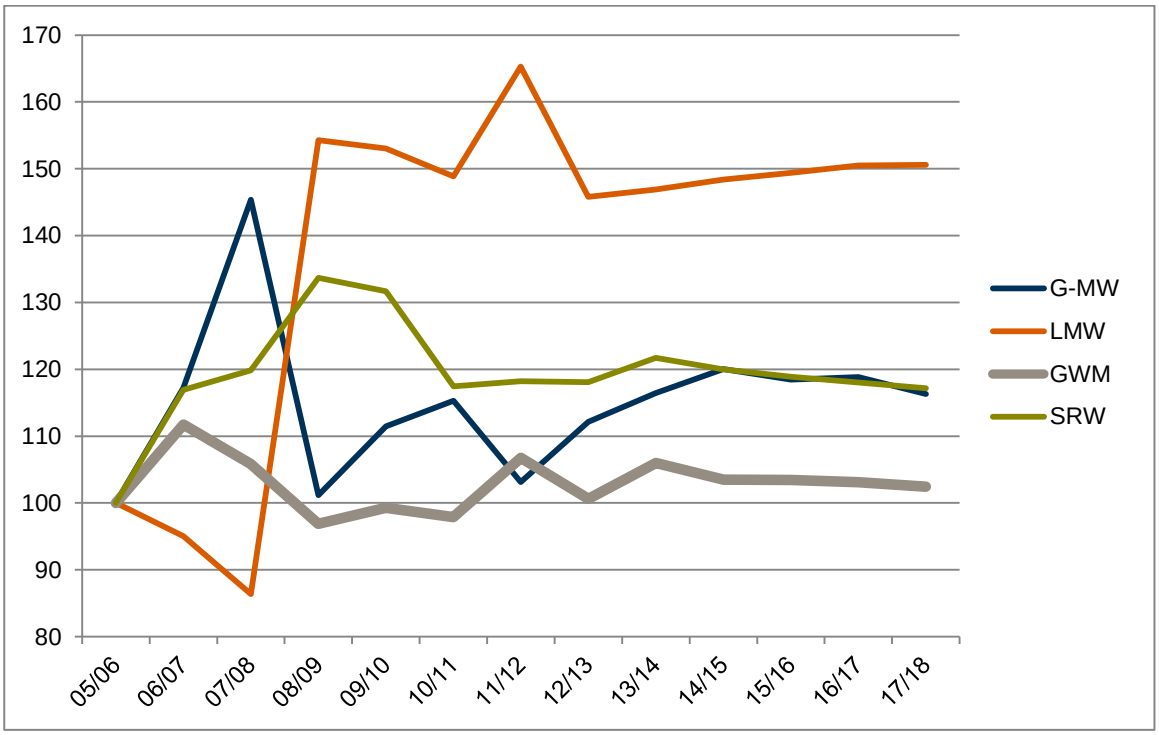

Figure 4-1 Total prescribed opex (from a common base of 100)

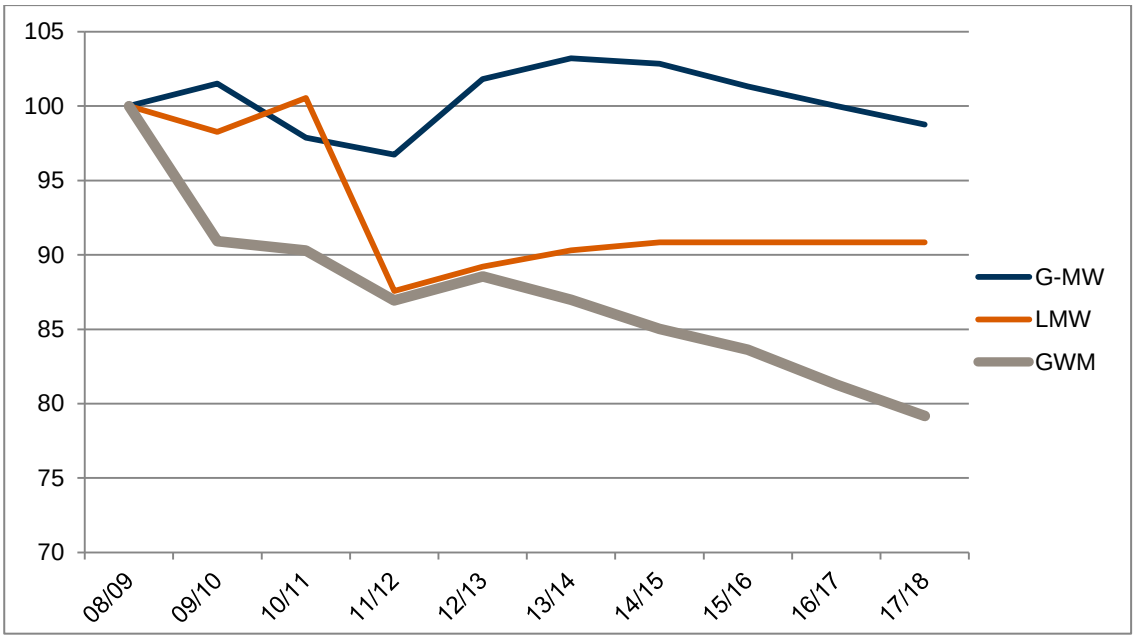

Figure 4-2 Total FTEs (from a common base of 100)

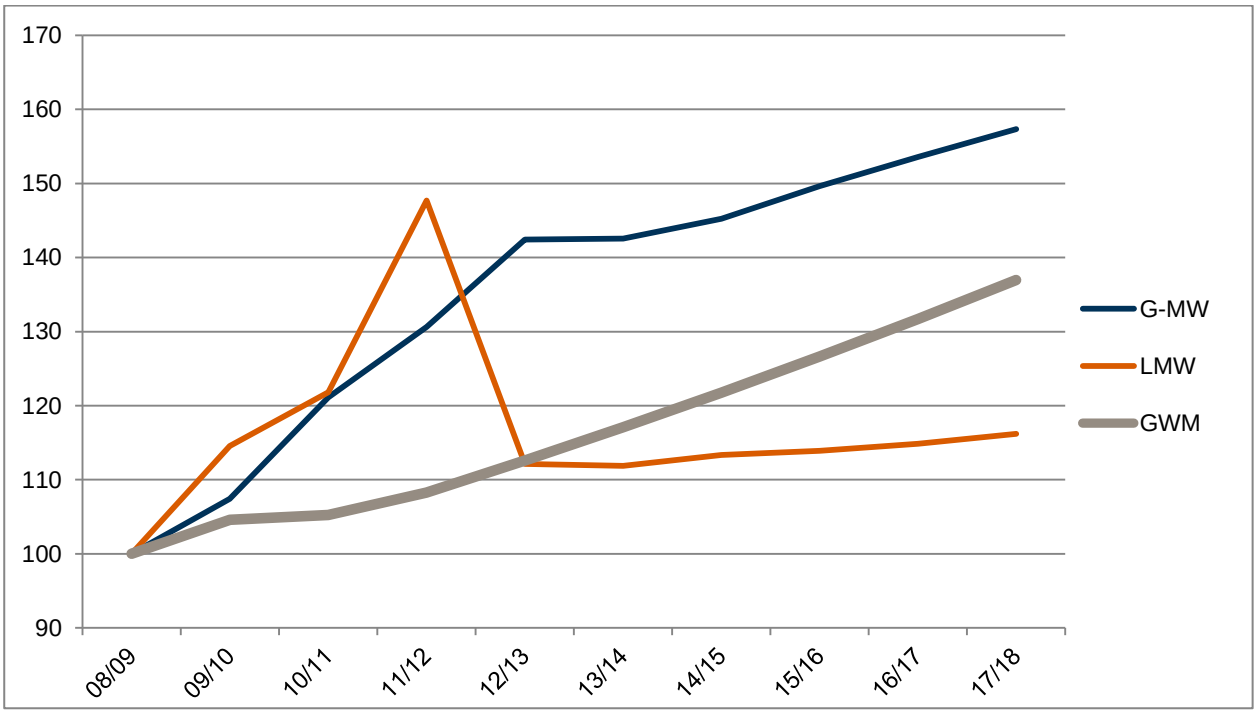

Figure 4-3 Cost per FTE (from a common base of 100)

The average electricity cost increase (refer Figure 4-4) proposed by G-WM Water is higher than that proposed by G-MW and LMW. However, the proposed increase of 4% per annum is lower than that forecast by the Australian Energy Market Regulator. We discuss GWMWater's assumptions relating to electricity costs in Section 4.5.

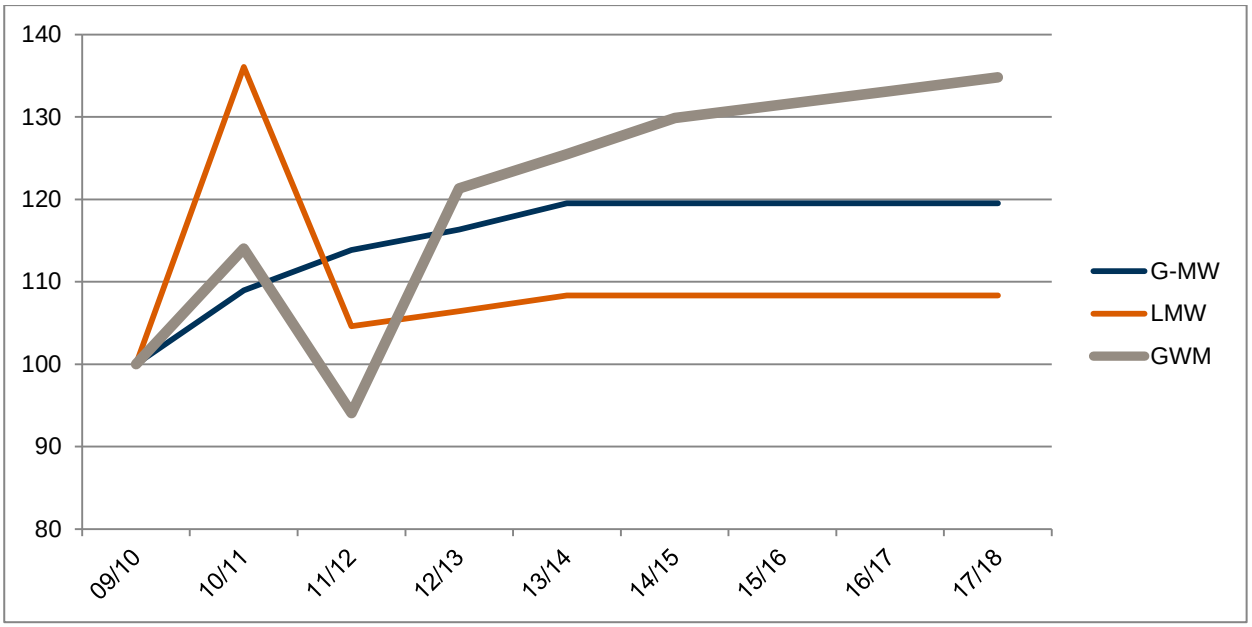

Figure 4-4 Average electricity cost (c/kWh) (from a common base of 100)

IT expenditure as a percentage of operating expenditure and as per FTE is shown in Figure 4-5 and Figure 4-6. GWMWater's IT expenditure as a percentage of total opex of around 4.25% is at the high end of the scale. This indicator typically averages around 3.0% for utilities and 3.2% for state/ local governments. However, we do not consider the level of expenditure to be excessive. IT expenditure per FTE in utilities, state and local government is in the order of $7,500 to $15,000 per FTE. GWMWater's IT expenditure per FTE is approaching $8,000 per annum. Increasing IT costs are to be expected as utilities make increasing use of SCADA to automate operations.

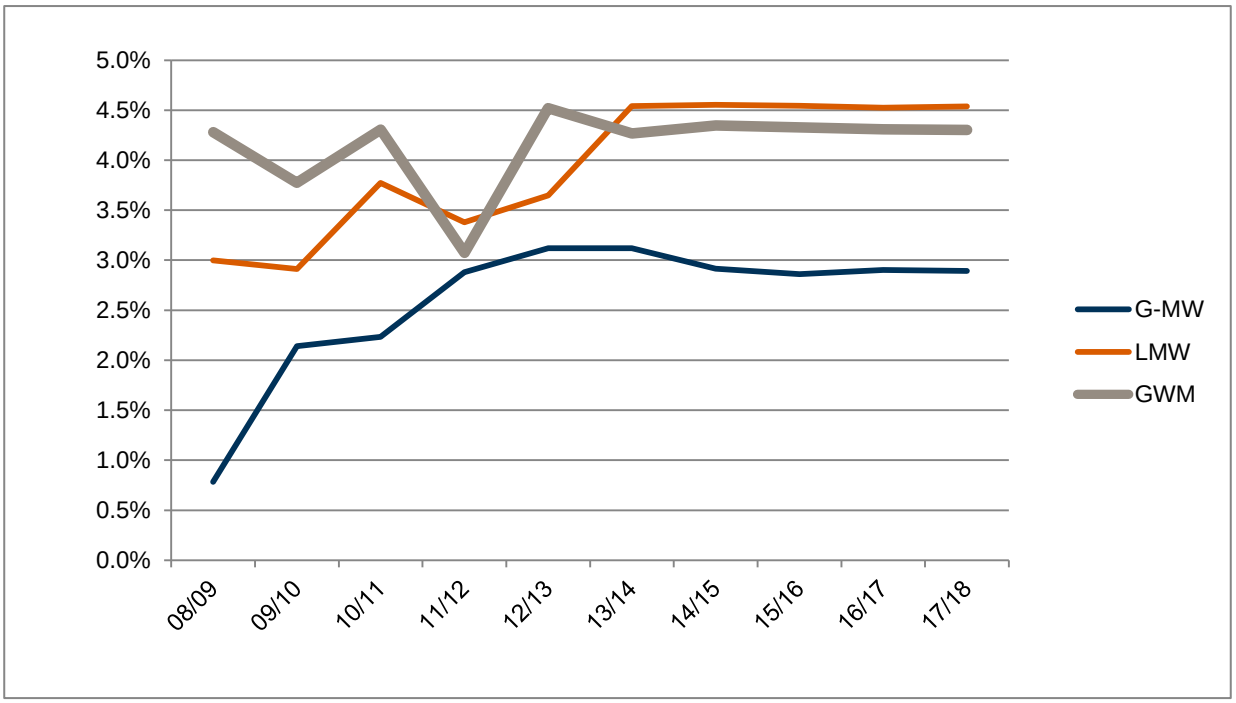

Figure 4-5 IT expenditure as % of operating expenditure

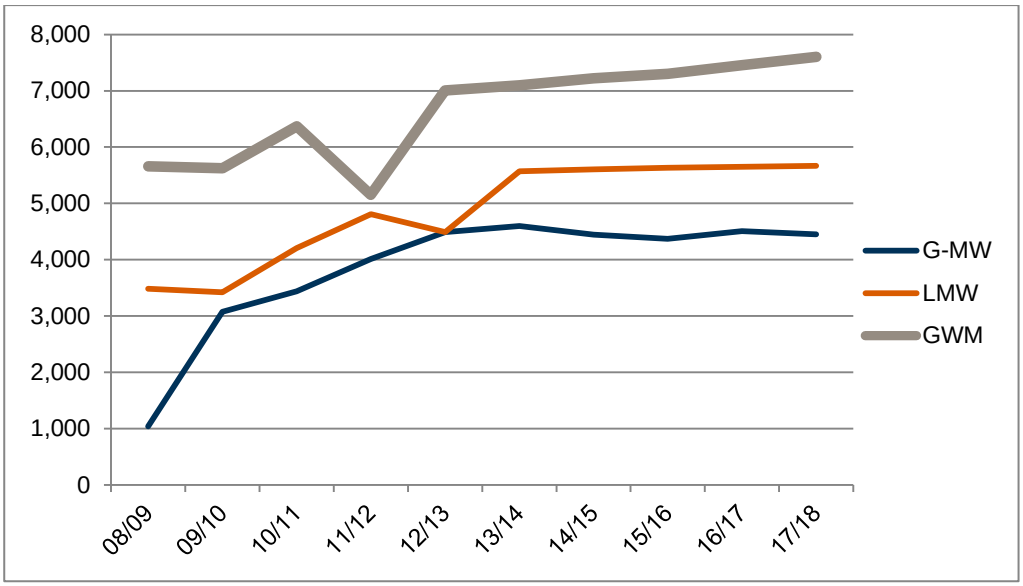

Figure 4-6 IT expenditure per FTE

4.5 Operating expenditure escalators

CPI

GWMWater has assumed the factors detailed in Table 4-4 for general inflation. These assumptions are consistent with the CPI factors recommended by the ESC.

Table 4-4 Assumed CPI

	13/14	14/15	15/16	16/17
CPI (per annum)	2.75%	2.75%	2.75%	2.75%

Labour

GWMWater has assumed a nominal 4% per annum increase in labour costs in line with its Enterprise Bargaining Agreement. This Agreement was recently agreed and its commencement will be back dated to April 2012. However, this Agreement only applies to the first three years of the regulatory period and it is likely that labour costs will increase at a rate closer to CPI over the last two years of the regulatory period. We therefore propose a reduction in GWMWater's labour costs to reflect this lower rate of increase in the last two years of the regulatory period.

Further, GWMWater has made an error in completing its financial template in that it has entered its assumed increase in labour costs as a nominal rate instead of a real rate. The real rate is the nominal rate net of inflation (4% - 2.75%), 1.25%. Table 4-5 presents GWMWater's assumptions relating to labour and our recommended adjustments.

Table 4-5 GWMWater labour growth assumptions

	13/14	14/15	15/16	16/17	17/18
Actual and forecast labour costs for current FTEs ($M)	17.67	18.37	19.11	19.87	20.67
Cost per FTE ($000)	89.46	93.04	96.76	100.63	104.65
Annual growth in labour costs for current FTEs	4.00%	4.00%	4.00%	4.00%	4.00%
Cardno recommended increase %	1.25%	1.25%	1.25%	0%	0%
Variance (%)	(2.75%)	(2.75%)	(2.75%)	(4.0%)	(4.0%)
Recommended adjustment ($M)	**(0.47)**	**(0.48)**	**(0.49)**	**(0.71)**	**(0.72)**

Electricity

GWMWater has assumed that electricity prices per kWh will increase at 4% per annum (1.25% real increase) for its large and small sites at the expiry of its current contracts. The forecast change in total energy costs is variable depending on the commissioning and decommissioning of assets as shown in Table 4-6.

Table 4-6 GWMWater applied electricity increases

	13/14	14/15	15/16	16/17	17/18
GWMWater total energy costs	2.36	2.43	2.32	2.57	2.63
% Increase per annum	6.93%	3.20%	(4.54%)	10.77%	2.12%

We note that GWMWater's assumption relating to future energy prices is more conservative than published estimates by bodies such as the Australian Energy Regulator. While GWMWater will not know what actual increases it faces until it renegotiates its contracts in the coming two years, we have been advised that based on the findings of Procurement Australia, that no real increases in electricity prices in future prices per annum should be allowed in future operating cost forecasts. On this basis, we recommend that the adjustments detailed in Table 4-7 be made to GWMWater's future operating cost forecasts.

Table 4-7 Adjustment to GWMWater future electricity costs

	13/14	14/15	15/16	16/17	17/18
Large sites					
Total energy use	7,618,999	7,633,739	7,491,505	7,930,701	7,993,004
GWMWater unit cost (c/kWh)	22.03	22.80	23.09	23.38	23.67
GWMWater total cost ($M)	1.68	1.74	1.73	1.85	1.89
Cardno revised unit cost (c/kWh)	22.0	22.0	22.0	22.0	22.0
Cardno revised total cost ($M)	1.68	1.68	1.65	1.75	1.76
Small sites					
Total energy use	2,711,124	2,729,269	2,308,853	2,763,884	2,792,926
GWMWater unit cost (c/kWh)	25.06	25.37	25.69	26.01	26.33
GWMWater total cost ($M)	0.68	0.69	0.59	0.72	0.74
Cardno revised unit cost (c/kWh)	25.1	25.1	25.1	25.1	25.1
Cardno revised total cost ($M)	0.68	0.68	0.58	0.69	0.70
Total – all sites					
GWMWater total cost ($M)	2.36	2.43	2.32	2.57	2.63
Revised total cost ($M)	2.36	2.37	2.23	2.44	2.46
Adjustment to operating cost forecasts	**-**	**(0.07)**	**(0.09)**	**(0.13)**	**(0.17)**

Chemicals

Chemical usage by GWMWater is not considered material.

4.6 Conclusions and recommendations

We note that GWMWater benchmarks favourably with comparable organisations for total operating expenditure, FTEs and IT. GWMWater also proposed a declining profile of operating expenditure in the forward regulatory period. We believe that GWMWater has a culture of challenging costs and identifying and achieving productivity gains. GWMWater has also proposed an productivity gain double the target set by the ESC.

We recommend that the $1M per annum of expenditure planned for decommissioning of redundant assets be allocated to capital expenditure rather than operating expenditure.

We recommend that adjustments be made to GWMWater's forecast costs for labour to reflect no real increase in costs per FTE at the expiry of its current EBA. We also recommend that GWMWater's forecast electricity costs be reduced slightly to reflect no real increase in costs over the regulatory period.

Our recommended business as usual and total prescribed operating expenditure for GWMWater is shown in Table 4-8.

Table 4-8 GWMWater recommended operating expenditure

	13/14	14/15	15/16	16/17	17/18
Business as usual operating expenditure	29.17	28.33	27.91	27.73	27.48
Reallocation of decommissioning costs to capex	(1.00)	(1.00)	(1.00)	(1.00)	(1.00)
Adjustment to labour costs	(0.47)	(0.48)	(0.49)	(0.71)	(0.72)
Adjustment to electricity costs	-	(0.07)	(0.09)	(0.13)	(0.17)
Recommended business as usual operating expenditure	**27.70**	**26.79**	**26.33**	**25.88**	**25.58**
Variance	(1.47)	(1.54)	(1.58)	(1.85)	(1.89)
Forecast total prescribed operating expenditure	32.77	32.01	31.92	31.82	31.61
Recommended total prescribed operating expenditure	**31.31**	**30.47**	**30.34**	**29.97**	**29.72**

Productivity assessment

The ESC requires all businesses to achieve a minimum of 1% per year productivity improvement on its baseline operating expenditure adjusted for growth. The ESC has determined a 'target' business as usual operating expenditure profile based on the 2011/12 baseline figure adjusted for customer growth and the productivity dividend target. Customer growth has been forecast using the adjusted average growth figures as determined through the review of future demand undertaken by ESC.
In its submission, GWMWater proposed a 2% annual productivity dividend on its unadjusted BAU totals.

Rather than identify specific initiatives where productivity improvements will be achieved, GWMWater has applied the productivity saving to total expenditure. However, GWMWater believes that the areas where it will realise the productivity gains are:

> Operation of the WMP and decommissioning of the channel stock and domestic system

> Reduced staff levels through automation and remote monitoring

> Reduced costs associated with redundant assets that will be decommissioned.

Table 4-9 compares the target BAU operating expenditure adjusted for growth and the productivity hurdle to that recommended by Cardno. This demonstrates that GWM Water will comfortably meet the productivity hurdle set by the ESC in each year of the price path.

Table 4-9 Productivity hurdle assessment ($M)

Operating expenditure item	Actual 11/12	13/14	14/15	15/16	16/17	17/18	Total
Recommended operating expenditure		29.45	28.61	28.48	28.11	27.86	142.51
Less prudent and efficient new initiatives expenditure		1.75	1.82	2.15	2.23	2.28	10.23
Recommended BAU expenditure		27.70	26.79	26.33	25.88	25.58	132.28
Adjusted BAU target	30.24	30.15	30.10	30.05	30.01	29.96	150.27
Amount above BAU target		-2.45	-3.31	-3.72	-4.13	-4.38	-17.99
% above BAU target		-8.13%	-11.00%	-12.38%	-13.76%	-14.62%	-11.97%

5 Detailed analysis of GWMWater's capital expenditure

5.1 Methodology

Our review of GWMWater's historic and forecast capital expenditure (capex) was based on interviews with key GWMWater staff, analysis of data provided and consideration of the following documents:

> Water Plan 3 Submission

> Water Plan 3 Financial Template

> Information provided by GWMWater staff in response to interview questions and requests for clarification or supporting material.

5.2 Overview

Figure 5-1 illustrates the actual capital expenditure from Water Plan 1 through to forecast expenditure until 2023. This figure includes expenditure on the Wimmera Mallee Pipeline project which demonstrates the scale of this project and its importance to GWMWater. $532M of the $688M forecast total capital cost for this project has been contributed from the State and Commonwealth governments.

Figure 5-2 shows capital expenditure over the same period net of expenditure on Domestic and Stock and therefore net of WMP expenditure. Figure 5-2 shows the following trends:

> Capital expenditure in Water Plan 1 was dominated by a large headworks project

> Capital expenditure net of Domestic and Stock expenditure in the Water Plan 3 period averages $13.0M per annum which is significantly lower than the $21.8M per annum averaged in the Water Plan 2 period. The average annual expenditure forecast for the Water Plan 4 period is $16.5M

> Urban water and sewerage comprise the majority of all capital expenditure when Domestic and Stock expenditure is excluded.

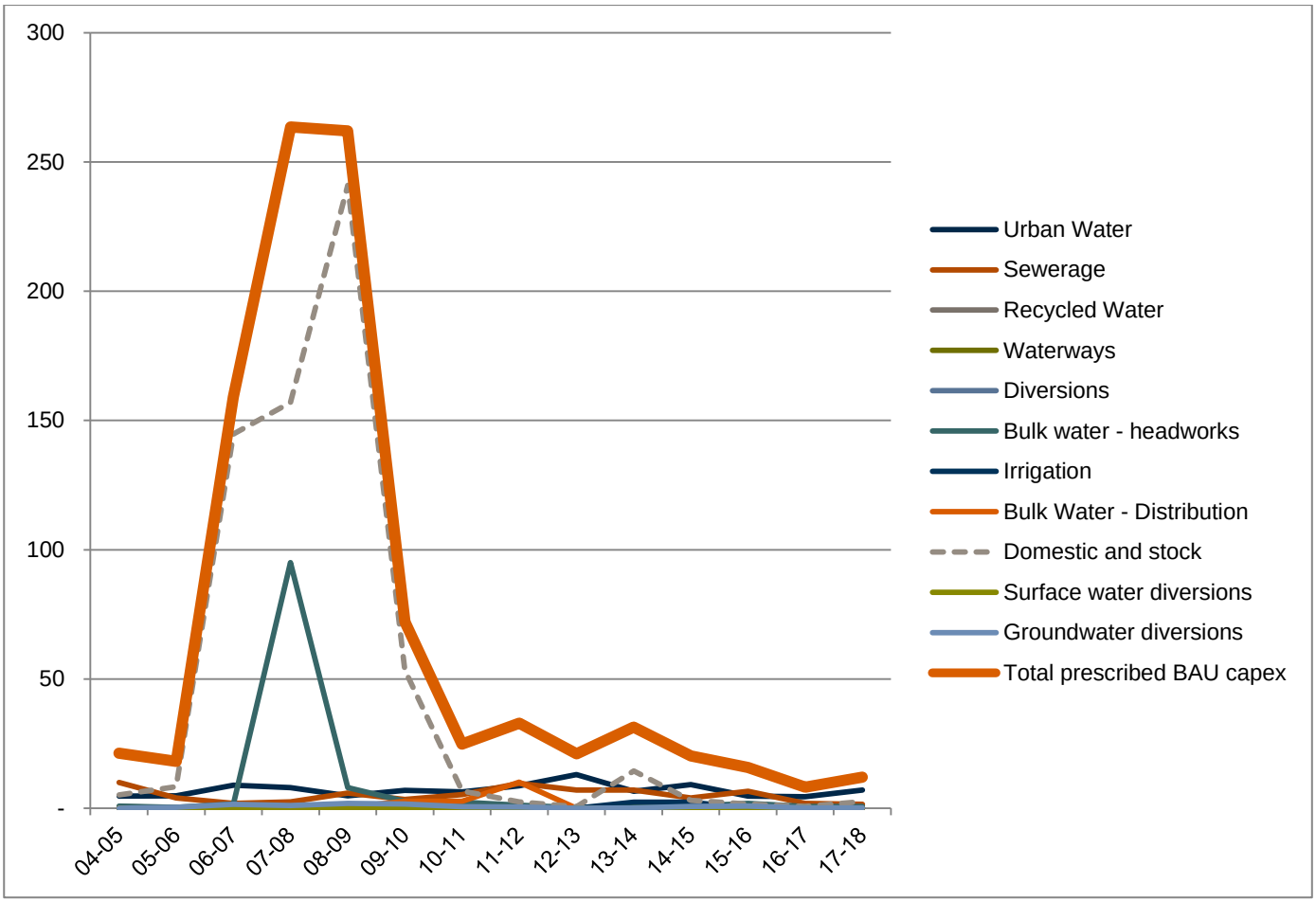

Figure 5-1 Capital expenditure by service

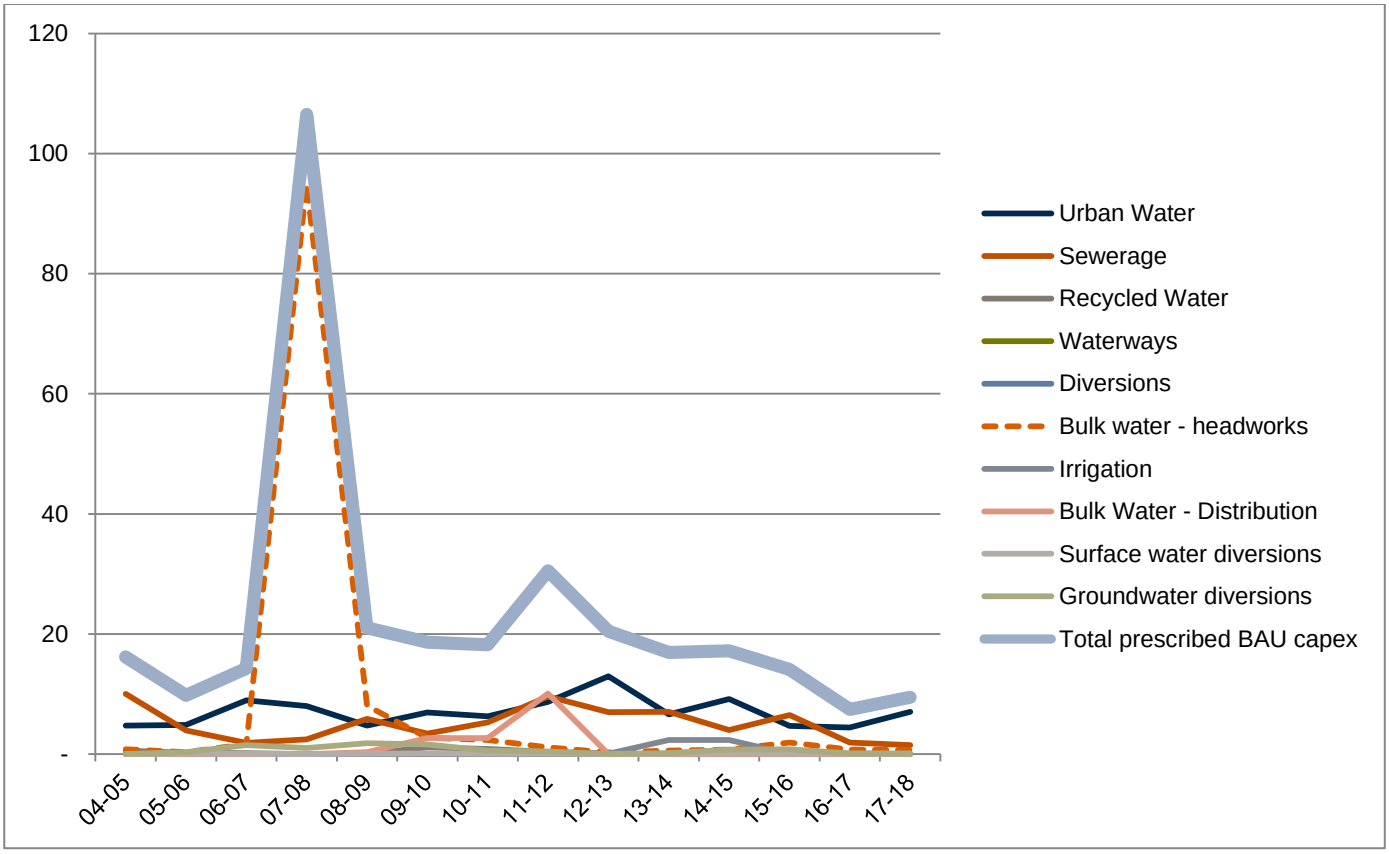

Figure 5-2 Capital expenditure by service (excluding domestic and stock)

5.3 Capital expenditure in current price path

Capital expenditure in the current price path is summarised in Table 5-1. Expenditure on the WMP project commenced in the Water Plan 1 period and continued into the Water Plan 2 period being practically complete in June 2010. Figure 5-3 compares planned and actual expenditure during the price path.

Table 5-1 Actual capital expenditure in Water Plan 2 ($12/13)

	08/09	09/10	10/11	11/12	12/13
Urban Water	4.77	6.96	6.29	8.73	12.98
Sewerage	5.89	3.44	5.31	9.61	6.99
Recycled Water	0.09	1.11	0.87	0.41	0.15
Bulk water - headworks	8.04	2.71	2.37	1.13	0.25
Irrigation	-	-	-	-	0.06
Bulk Water - Distribution	0.34	2.66	2.66	10.10	-
Domestic and stock	240.95	53.48	6.68	2.46	0.61
Surface water diversions	0.06	0.13	0.09	0.09	0.02
Groundwater diversions	1.84	1.61	0.61	0.44	0.01
Total capex	**261.98**	**72.10**	**24.87**	**32.96**	**21.06**

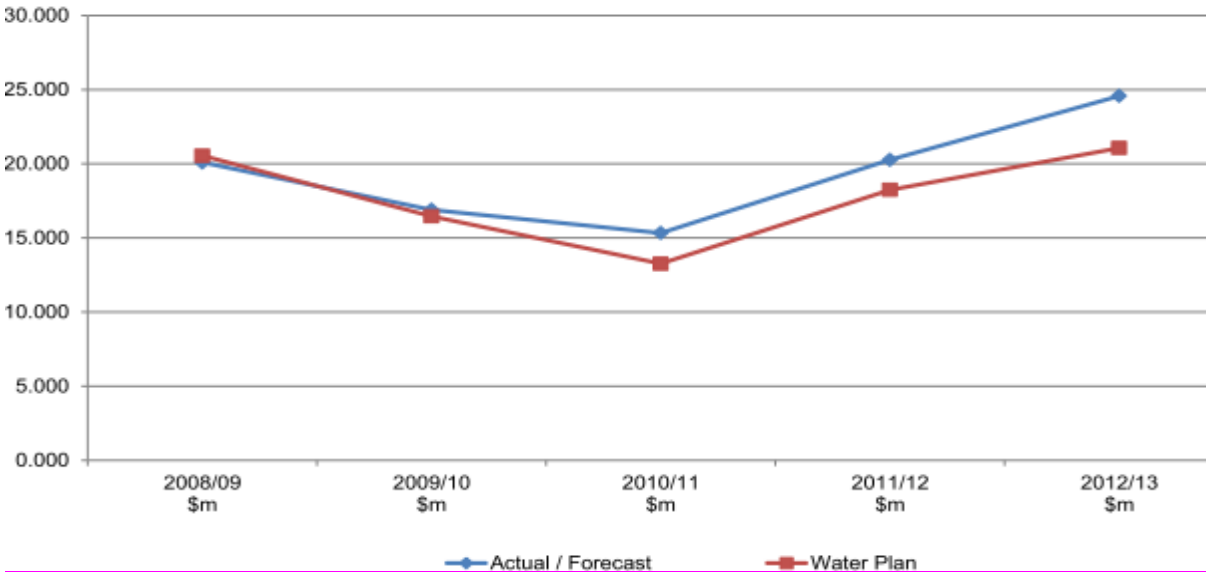

Figure 5-3 Water Plan 2 capital expenditure forecast and actual (net of WMP) *(Source: GWMWater Water Plan)*

The WMP project is highly significant to GWMWater. It has replaced around 18,000km of earthen supply channels used for Domestic and stock supply with a network of over 9,000km of pressurised pipes. As the piped network loses less water than the former system, the estimated water savings have been converted to water entitlements. The Commonwealth has returned its 80GL share of the water entitlements to the environment while GWMWater is able to use its 20GL of created entitlements to sell to support future growth in its operating area. The total agreed funding for the project has not been fully spent. Therefore, GWMWater is proposing that its unspent contribution be put toward enhancements to the pipeline that will provide more monitoring and control of its operation. Because this project has been largely funded through contributions and has been scrutinised in other reviews, we do not consider this project further in this report.

The expenditure in the current regulatory period net of WMP expenditure is largely comprised of a small number of projects to upgrade wastewater treatment plants and improve water supply to towns. No one project is significantly large.

Figure 5-3 shows forecast and actual capital expenditure in the Water Plan 2 period net of WMP expenditure. This figure shows that GWMWater will exceed its forecast capital expenditure by several million dollars.

GWMWater notes the following contributing factors to the observed variance between forecast and actual capital expenditure:

> The unexpected requirement for GWMWater to purchase a permanent water entitlement for water from the Murray River to supply sections of the WMP. It had assumed that this entitlement could be converted from an existing entitlement. This unanticipated cost was approximately $6M

> Deferral of dam safety works at Lake Lonsdale and Lake Fyans following revised assessment of the risk each posed. GWMWater notes that this variance largely offsets the unanticipated expenditure for the water entitlement

> Construction cost inflation being higher than forecast.

The ESC's Performance Report for 2011/12 includes review of the delivery of major projects by the water businesses. This report notes that of the six major projects being undertaken by GWMWater, three were finished on time, two were deferred and one cancelled. The cancelled projects include the Lake Lonsdale dam safety upgrade. The three delayed projects are:

> St Arnaud's Waste Water Treatment Plant upgrade

> Edenhope Water Supply Security

> Stawell Waste Water Treatment Plant.

All three projects are expected to be completed in the current price path. The observed delays to these projects and the small overrun of actual capital expenditure compared to forecast capital expenditure suggests that GWMWater can improve its capital delivery processes. As noted in Section 3, we believe that the processes used to formulate GWMWater's expenditure for the future regulatory period are sufficiently robust. We also note that the level of expenditure in the future price path is lower than that in the current price path net of WMP expenditure. Therefore, we do not have any concerns over the deliverability of GWMWater's proposed capital expenditure in the Water Plan 3 period.

5.4 Capital expenditure in future price path

The forecast capital expenditure program by service is listed in Table 5-2. Expenditure by driver is illustrated in Figure 5-4.

Table 5-2 Forecast capital expenditure service ($M 12/13)

	13/14	14/15	15/16	16/17	17/18
Urban Water	6.63	9.19	4.72	4.46	7.05
Sewerage	7.03	3.99	6.54	1.91	1.51
Recycled Water	0.04	0.05	0.03	0.14	0.03
Bulk water - headworks	0.60	0.75	1.94	0.74	0.69
Irrigation	2.38	2.38	-	-	-
Bulk Water - Distribution	-	-	-	-	-
Domestic and stock	14.42	3.09	1.65	0.72	2.53
Surface water diversions	0.09	0.09	0.08	0.09	0.06
Groundwater diversions	0.16	0.74	0.81	0.15	0.14
Total capex	**31.33**	**20.28**	**15.77**	**8.19**	**12.02**

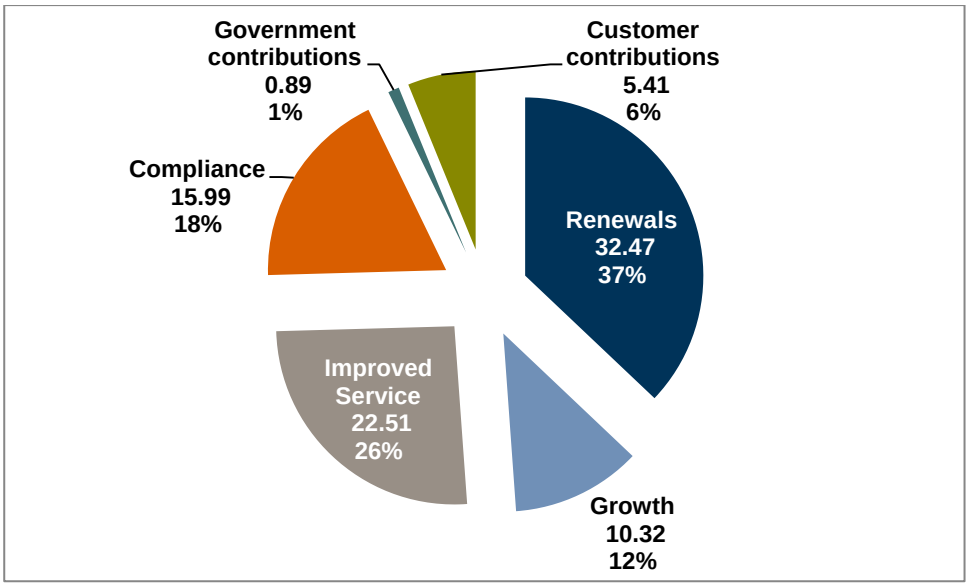

Figure 5-4 Total forecast expenditure by driver ($M12/13)

The above analysis shows that:

> Capital expenditure for recycled water, bulk water – headworks, irrigation, surface water diversions and ground water diversions only comprise a small proportion of the total program. Expenditure on these services is mostly steady throughout the forecast period except for expenditure on irrigation which does not continue past 2014/15

> Urban water, sewerage and Domestic and stock are the most significant elements of the program and together comprise 87% of all expenditure. Urban water is the single largest component of expenditure.

The highest value capital expenditure projects in the Water Plan 3 period are detailed in Table 5-3. The highest value project is to provide remote monitoring and control of customer connections on the WMP. This project is scheduled to commence in the current regulatory period. The next largest single item of expenditure is for decommissioning of irrigation assets made redundant by the WMP. GWMWater informed us that this expenditure is presented as capital expenditure rather than operating expenditure to maintain consistency with how expenditure for decommissioning has been categorised previously on the WMP project. GWMWater further notes that treating this expenditure as capital spreads the cost impact over a longer period. We discussed this approach with ESC who advised that they were comfortable that this expenditure be categorised as capital expenditure.

Table 5-3 Water Plan 3 highest value capital projects ($M 12/13)

Service area	Project	Driver	Expenditure in Water Plan period ($M 12/13)
Domestic and stock	Intelligent rural pipeline networks	Improved service	$6.5
Irrigation	Irrigation Network Decommissioning	N/a	$4.7
WMPP	WMP Augmentation	Improved service	$4.6
Urban Water	Treated Water Supply – Donald	Improved service	$3.9
Wastewater	Sewerage Scheme – Rupanyup	Compliance	$3.7
Wastewater	Upgrade WWTP and Reuse System - Donald	Improved service	$2.7
Urban Water	Water Treatment - Sea Lake	Improved service	$2.5
Urban Water	Minyip Drinking Water Supply	Improved service	$1.65

5.5 Detailed review of sample capital projects

Water Plan 3 sample Projects

As required under the scope set by the ESC, we have reviewed a sample of capital projects to inform our opinion of GWMWater's future expenditure forecasts. Our findings are summarised below.

Intelligent rural pipelines
Key driver: Improved Service

This project is planned to provide remote reading of around 9,900 customer meters on the recently completed Wimmera Mallee Pipeline. These meters are currently manually read. GWMWater intends to install technology that will complement the existing meters by transmitting usage data at set intervals (probably daily) via the mobile phone network. GWMWater considers that this project is essential to it realising the benefits available to it from the construction of the WMP. The benefits of installing remote reading of meters are considered to include:

> Reduced meter reading costs

> Increased supply efficiency through more rapid detection of leaks

> Greater customer knowledge of usage patterns and therefore ability to modify behaviour.

We challenged GWMWater over the veracity of its estimated capital and operating costs for this this project. GWM presented to us a cost analysis that compared its preferred option of 'back to base' metering with manual reading and drive-by reading of radio meters. We reviewed the cost assumptions in this spreadsheet and found them to be supported by further information. The 'back to base' option has the most favourable life cycle cost of the three options. We note that this option also provides the largest non-financial benefits, for example through the provision of better information to customers.

GWMWater informed us that it has been investigating this technology for a number of years and has trialled different transmitters in this time and obtained a number of quotes for transmittal of SMS messages. We consider the greatest risk to this project is that the quotes obtained by GWMWater in this feasibility stage are not matched by the prices received during the actual tender phase making the project unviable. GWMWater recognise this risk and have appointed an independent procurement advisor to assist in obtaining competitive tenders for the construction and operating components of the project.

Irrigation network decommissioning
Key driver: N/a

This expenditure is to decommission irrigation channels no longer required following construction of the WMP. The irrigation channels present a liability to GWMWater if left in the current state. These works are planned to decommission 164km of channels. GWMWater has a strong appreciation of costs for this work activity as this is an extension of decommissioning works that are currently in progress.

Rupanyup sewerage scheme
Key driver: Compliance

The small town of Rupanyup (population of approximately 400 people) is to have sewerage services provided for the first time. GWMWater proposes a pressure sewer system including grinder pumps for the collection network and facultative lagoons for treatment. The driver for these works is that Rupanyup is listed as a priority town under the State Government's Country Towns Water Supply and Sewerage Program. GWMWater has received some contributions from the Department of Sustainability and Environment for this project.

We reviewed the business case for this project and found that it presented a detailed summary of the investment need and the options investigated to address the need. A number of strong options were considered against financial and non-financial criteria. The financial assessment was a whole of life cycle cost estimate. The pressure sewer system is largely selected over a gravity sewer system due to its lower capital cost as it is easier to install in this already developed township.

We believe that this expenditure is appropriate to GWMWater's drivers and is well justified by the supporting analysis. GWMWater has recently installed a similar system at Lake Bolac therefore we do not have concerns over its ability to deliver this project.

Upgrade Donald WWTP and Reuse System
Key driver: Improved Service

The Donald WWTP experiences high levels of inflow. The plant also has some aged and poorly performing assets. GWMWater commissioned a consultant to investigate options for meeting the treatment requirements at this plant into the future. The works identified include rehabilitating some assets and introducing chemical dosing for nutrient removal. The cost estimate included in the Water Plan is based on the estimate from in the consultant's report.

GWMWater has timed these works for the end of the upcoming regulatory period. This is because it believes it may be able to improve plant performance by addressing the high infiltration by undertaking a program of sewer relining. It proposes to spend $230k on this activity in the early year of the Water Plan 3 period. We believe that this approach is prudent.

While there is a possibility that GWMWater may be able to defer some of the proposed upgrade works if the sewer relining proves to be successful, we are satisfied that the upgrade works will be required.

5.6 Conclusions and recommendations

From discussions with GWMWater staff, a review of a sample of projects including supporting documentation and a high level review of asset management and capital delivery processes we consider that the capital projects undertaken in WP2 and proposed in WP3 are:

> Appropriate to key drivers and obligations

> Are supported by adequate supporting analysis and systems

> Are deliverable over the regulatory period

> And, for projects planned for WP3, have reasonable cost estimates.

As noted in Section 4, we recommend that the expenditure for decommissioning of non-irrigation assets currently classed as operating expenditure be allocated to capital expenditure instead.

Our recommended level of capital expenditure for the Water Plan 3 period is summarised in Table 6-2.

6 Recommended operating and capital expenditure

Following our review of GWMWater's proposals for the upcoming Water Plan 3 regulatory period, we recommend that GWMWater be allowed to recover in its revenue requirements the operating and capital expenditure detailed in Table 6-1 and Table 6-2.

Table 6-1 Recommendations for GWMWater's operating expenditure

	13/14	14/15	15/16	16/17	17/18
GWMWater forecast business as usual operating expenditure	29.17	28.33	27.91	27.73	27.48
Reallocation of decommissioning costs to capex	*(1.00)*	*(1.00)*	*(1.00)*	*(1.00)*	*(1.00)*
Adjustment to labour costs	*(0.47)*	*(0.48)*	*(0.49)*	*(0.71)*	*(0.72)*
Adjustment to electricity costs	*-*	*(0.07)*	*(0.09)*	*(0.13)*	*(0.17)*
Recommended business as usual operating expenditure	**27.70**	**26.79**	**26.33**	**25.88**	**25.58**
Variance	(1.47)	(1.54)	(1.58)	(1.85)	(1.89)
GWMWater forecast total prescribed operating expenditure	32.77	32.01	31.92	31.82	31.61
Recommended total prescribed operating expenditure	**31.31**	**30.47**	**30.34**	**29.97**	**29.72**

Table 6-2 Recommendations for GWMWater's capital expenditure

	13/14	14/15	15/16	16/17	17/18
GWMWater forecst capital expenditure	**31.33**	**20.28**	**15.77**	**8.19**	**12.02**
Recommended adjustment for decommissioning of assets	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
Recommended capital expenditure	**32.33**	**21.28**	**16.77**	**9.19**	**13.02**
Net Change	1.0	1.0	1.0	1.0	1.0