

City West Water

Water Plan
2009-10 to 2012-13



City West Water

L I M I T E D

A.B.N. 70 066 902 467

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1 Introduction

1.1 Purpose

This Water Plan sets out the services that City West Water (CWW) intends to deliver over the four-year period 2009–10 to 2012–13, what those services will cost, and the prices that CWW needs to charge to recover these costs.

This Water Plan has been structured in accordance with Essential Services Commission (ESC) guidelines issued in September 2006, and supplementary guidance issued on 29 September 2008. It is an update of a draft Water Plan prepared in August 2007. That draft Water Plan was prepared with input from a customer committee, market research and advice from the ESC, the Environment Protection Authority Victoria (EPA), the Department of Sustainability and Environment (DSE) and the Department of Human Services (DHS). The regulatory obligations required by each regulatory body have been included in this plan.

This Water Plan has relied upon that previous input, in the knowledge that the ESC will be exposing this Plan and its analysis during its own public consultation process.

1.2 Business Strategy

CWW is a water business 100 per cent owned by the Victorian Government. It plays an important role in the implementation of Government policies. CWW is proud to contribute to the environmental, economic, social well-being and growth of Victoria through environmentally sensitive operations, a commercial focus and the distribution of dividends to the Government.

Vision "A truly sustainable water business"	
Mission "Guarantee affordable and safe water for today and tomorrow"	
Values Leadership Integrity	Innovation Respect

STRATEGIC OBJECTIVES		
Environment <i>Significantly more with significantly less</i>	Social – Customer <i>Right product, right price, right way</i>	Economic <i>Efficiency and growth</i>
<ul style="list-style-type: none"> • Manage supply and demand to minimise extraction of water from the environment • Maximise sustainable reuse of water • Protect the environment and minimise the impact of our services on the environment • Towards zero waste 	<ul style="list-style-type: none"> • Services matched to customer needs • Conservers, not consumers • Clean producers, not polluters <p>Social – Our People <i>For Today and Tomorrow</i></p> <ul style="list-style-type: none"> • Right people, right jobs, right outcomes • Absolute safety <p>Social – Community <i>Leading and including</i></p> <ul style="list-style-type: none"> • Community leader and advocate in water cycle management • Partnering for sustainable outcomes 	<ul style="list-style-type: none"> • Financial strength to deliver sustainability • Services enhance new business and growth in the community • Maximise triple bottom line return to the shareholder • Prudent and efficient

Environment Strategies

- Water recycling and other water sources eg stormwater
- Water conservation
- Salinity reduction and cleaner production
- Minimise water loss
- Achieve net zero greenhouse emissions

Customer Strategies

- Meeting customer service standard targets in the most efficient manner
- Customer engagement and understanding customer needs
- Better response to customers with ethnic needs
- Ensure safe water

Community Strategies

- Community leader and advocate in water cycle management
- Partnering for sustainable outcomes

People Strategies

- Engagement of staff
- Enhancing capability and continuous development
- Efficiency and alignment of processes and systems
- Enhanced Occupational Health and Safety processes and systems

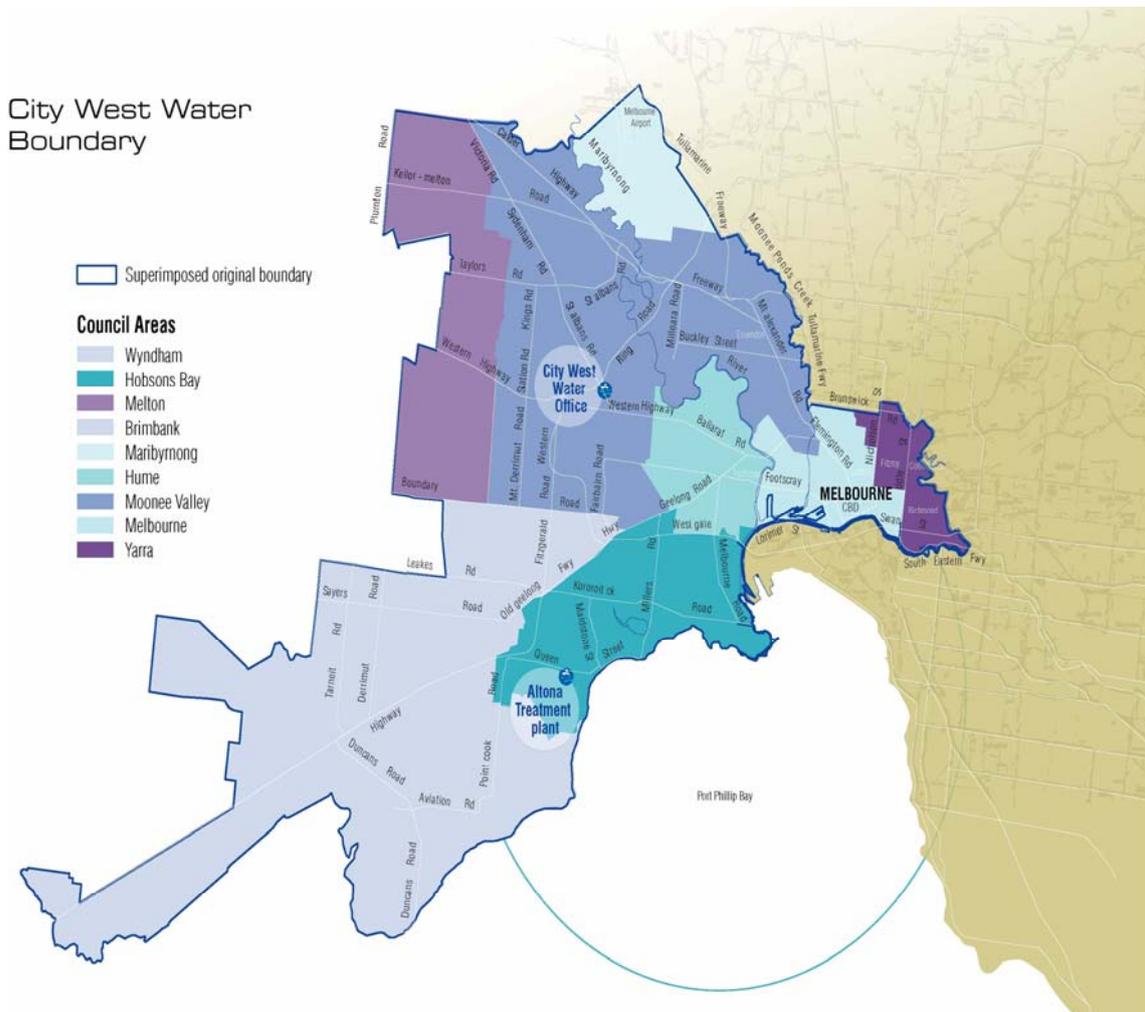
Economic Strategies

- Operating efficiencies
- Information and resource management

1.3 Business Description

The State Government owns all Victorian water authorities, and City West Water has been allocated a service area that includes Melbourne's central business district and inner and western suburbs.

Figure 1.1 City West Water's Licence Area



The predominant soil type is clay, which shrinks and cracks in dry conditions, resulting in weather-related peaks in water main bursts and leaks. Furthermore, sewer blockages increase following dry conditions due to tree root intrusion. CWW's service area receives relatively low rainfall, averaging 500–700 millimetres per year, compared with 700–1200 millimetres in the southern and eastern suburbs of Melbourne.

The central activity district has special servicing requirements due to heavy traffic and the density of underground assets of other utilities. Another feature is a growing inner city population. Customer service strategies, particularly renewals and maintenance, are adapted to meet the service standards in these challenging areas.

Growth in the western suburbs is strong, with around 35 per cent of all development in metropolitan Melbourne occurring within CWW's service area. Two of Australia's fastest growing local government areas, Wyndham and part of Melton, are serviced by CWW.

A feature of CWW's customer base is the high proportion of industry customers. Non-residential customers on average consume just over 47 per cent of total water sold by CWW, in contrast to the rest of Melbourne where non-residential water use is about 30 per cent of total water consumption. The volume of trade waste accepted by CWW is second in Australia only to the volume collected from all of Sydney.

CWW's residential customers belong to a wide range of socio-economic groups with a high proportion of customers on some form of concession or financial assistance. According to the 2006 Australian Bureau of Statistics Census, 35¹ per cent of CWW customers have a primary language other than English. To meet these customer needs CWW has an extensive interpreter service, a hardship program and a comprehensive range of payment options.

The key servicing features of CWW's operating environment are:

Table 1.1 City West Water's Customer Base (June 2008)

	Number
Total customers	337 000
Residential customers	302 000
Non-residential customers (including trade waste)	35 000
Trade waste customers	6 000
Population estimate	788 000

CWW also manages water and sewerage distribution networks as well as the retail services:

Table 1.2 City West Water's Network (June 2008)

Water network	
Kilometres of water mains	4 217
Number of pumping stations	9
Number of tanks / service reservoirs	8
Number of secondary chlorination plants	4
Gigalitres of water purchased from Melbourne Water in 2007–08	93.1
Sewerage network	
Kilometres of sewer	3 708
Number of pumping stations	75
Number of sewage treatment plants	1
Gigalitres of sewage delivered to Melbourne Water in 2007–08	67.4
Gigalitres of sewage treated at Altona Treatment Plant in 2007–08	4.7

¹ There are a further 23% of responses in which primary language was not stated.

1.4 Document Outline

This Introductory chapter has outlined the purpose of this Water Plan, the strategic direction CWW is pursuing and a brief overview of its customers and business.

Chapter 2, 'Outcomes for the First Regulatory Period', reports on achievement in the delivery of the outcomes committed to for the first regulatory period.²

Chapter 3, 'Service Outcomes', documents the service standards which underpin the expenditure proposals for the forthcoming regulatory period. The standards and obligations reflect 'business-as-usual', consistent with a price-constrained period.

Chapter 4, 'Revenue Requirement', calculates the revenue required by CWW and adjusts regulatory depreciation to ensure prices do no more than double in real terms over five years.

Chapter 5, 'Demand', derives the four-year forecasts and provides an overview of the factors impacting on the demand for the key services.

Chapter 6, 'Prices', lists the current and proposed prices. No tariff changes are proposed, in order to be able to demonstrate prices do no more than double. However the chapter outlines the areas which CWW believes should be reformed at some time in the future.

Chapter 7, 'Financial Summary' presents the expected financial results for CWW over the regulatory period, based on the demand forecasts and prices proposed in earlier chapters.

² The 'First Regulatory Period' is 1 July 2005 – 30 June 2008. The 'Second Regulatory Period' is 1 July 2008 – 30 June 2009. The 'Third Regulatory Period', also referred to as the Forthcoming Regulatory Period', is 1 July 2009 – 30 June 2013.

2 Outcomes for the First Regulatory Period

This chapter outlines City West Water's (CWW) achievement in the delivery of the outcomes committed to for the First Regulatory Period, from 1 July 2005 to 30 June 2008.

2.1 Service Standards

2005-06

All but one service standard was met in 2005–06. The one exception was water quality complaints per 1000 customers. During the period between 30 January and 4 February 2006, CWW received an unusually high number (159) of water quality complaints based on perceived taste and/or odour in the Airport West, Avondale Heights, Keilor East, Essendon, Niddrie and St. Albans areas. These complaints were generated by an adverse change in Melbourne Water's (MWC) bulk supply within the southern portion of their Greenvale – St Albans main which is lined with coal-tar enamel.

2006-07

All but the following five service standards were met in 2006–2007:

- unplanned water supply interruptions restored within 5 hours
- average duration of unplanned water supply interruptions
- complaints to the Energy and Water Ombudsman Victoria (EWOV)
- telephone calls answered within 30 seconds
- account enquiries answered within 30 seconds.

Due to continuing drought conditions and the increased focus on water loss, a change in field practice was implemented in January 2007. When responding to burst water mains, water is now turned off immediately to save water unless this will cause a threat to public health or a significant disruption to the community or businesses. This change in practice impacted on performance indicators for 'unplanned water supply interruptions restored within 5 hours', 'average unplanned customer minutes off supply' and 'average duration of unplanned water supply interruptions'; but also resulted in the saving of significant amounts of water.

'Telephone calls and account enquiries answered within 30 seconds' were also below target for the year. This resulted from a significant increase in call volumes that occurred when stage three water restrictions were announced. The results were also impacted by delays in the billing cycles following the implementation a new billing system (Gentrack). Increased transaction volumes for changes in property ownership and occupancy also contributed to the results.

The delays in billing, and property ownership and occupancy changes, also had a negative impact on the 'complaints to EWOV' performance indicator.

2007-08

All but five service standards were met in 2007-08, for the same reasons as given for 2006-07. While those indicators associated with unplanned interruptions appear to have deteriorated, it is due to the new field practice for burst water mains being in place for the whole of 2007-08, compared to only the second half of 2006-07.

2.2 Regulatory Obligations

Management of drinking water quality was enhanced by the commissioning in 2007 of four secondary chlorination plants that service the localities of Little River, Werribee South, East Keilor and Richmond. A pH stabilisation unit was also installed at Little River in 2007.

Discharge licence standards increased and the quality improved dramatically at the Altona Sewerage Treatment Plant with the completion of the new plant on 29 December 2006.

Water conservation programs were accelerated between 2005 and 2008 resulting in a drop in water consumption³ from 427 litres per person per day in 2004-05 to 327 litres per person per day in 2007-08, which is below the 2014-15 target of 405 litres per person per day. A significant part of this reduction can be attributed to water restrictions, but it also reflects the effective delivery of all of the water conservation programs.

³ Total water use divided by total population, so it includes non-residential water use. For CWW, non-residential water use is about 47 per cent of total use, which significantly inflates the calculated per capita consumption.

Table 2.1 Performance Against Service Standards

	Unit	Actual 2005–06	Plan 2005–06	Actual 2006–07	Plan 2006–07	Actual 2007–08	Plan 2007–08
Water							
Unplanned water supply interruptions	per 100km	53.7	70.5	67.5	70.5	62.1	70.5
Average time taken to attend bursts and leaks (priority 1)	minutes	24.0	26	24.5	26	24.0	26
Average time taken to attend bursts and leaks (priority 2)	minutes	36.7	38	33.0	38	33.3	38
Unplanned water supply interruptions restored within five hours	per cent	99.5	98.9	96.8	99.0	94.3	99.0
Planned water supply interruptions restored within five hours	per cent	94.1	89.5	92.3	89.8	93.6	90.0
Average unplanned customer minutes off water supply	minutes	27.0	41.2	40.3	40.9	41.4	40.6
Average planned customer minutes off water supply	minutes	7.3	23.7	7.6	23.7	8.5	22.3
Average frequency of unplanned water supply interruptions	no. per customer	0.285	0.39	0.34	0.39	0.30	0.39
Average frequency of planned water supply interruptions	no. per customer	0.05	0.15	0.06	0.15	0.065	0.14
Average duration of unplanned water supply interruptions	minutes	95.9	106	118.8	106	137.9	105
Average duration of planned water supply interruptions	minutes	140.8	158.7	142.1	158.5	134.0	158.3
Number of customers experiencing more than 5 unplanned water supply interruptions in the year	number	0	250	85	250	106	250
Unaccounted for water	per cent	9.8	10.2	9.3	10.0	8.4	10.0
Sewerage							
Sewerage blockages	per 100km	26.0	33	26.0	33	28.7	33
Average time to attend sewer spills and blockages	minutes	23.0	28	22.4	27	24.9	27
Average time to rectify a sewer blockage	minutes	115.6	141	106.7	140	125.3	139
Spills contained within five hours	per cent	100	100	100	100	100	100
Customers experiencing more than 3 sewer blockages in the year	number	0	0	0	0	0	0
Customer service							
Complaints to EWOV	per 1000 customers	0.35	0.41	0.61	0.42	0.68	0.42
Telephone calls answered within 30 seconds	per cent	81.7	80.4	71.6	81.4	82.4	82.4

Table 2.1 Performance Against Service Standards (Contd...)

	Unit	Actual 2005-06	Plan 2005-06	Actual 2006-07	Plan 2006-07	Actual 2007-08	Plan 2007-08
Additional service standards							
Average time taken to attend bursts and leaks (priority 3)	minutes	258	370	222.6	370	222.6	370
Water quality complaints	no. per 1000 properties	1.4	1.3	0.9	1.3	1.1	1.3
Average time to rectify water faults	days	0.9	1.2	1.1	1.2	1.0	1.1
Water main breaks	no. per 100km	60.5	96	85.7	96	68.3	96
System faults calls answered within 30 seconds	per cent	92.6	89	93.7	90	93.7	92
Accounts enquiries answered within 30 seconds	per cent	78.9	78.3	65.3	79.3	79.4	80
Interruptions to sewerage services restored within five hours	per cent	97.2	95	98.7	95	97.0	95
Sewer spills within a house contained within one hour of notification	per cent	100	99.4	100	99.4	100	99.4
Priority 1 bursts responded to within 1 hour	per cent	100	99.5	99.6	99.5	99.8	99.5
Customer correspondence responded to within ten working days	per cent	100	100	100	100	100	100

2.3 Delivery of Key Capital Projects

The key capital projects committed to in the first regulatory period were:

- Altona treatment plant redevelopment
- Werribee West dual water supply scheme
- Werribee Technology Precinct Recycling Scheme
- Altona golf course recycling
- IT projects
- Corporate head office refurbishment

Altona Treatment Plant

The driver for the redevelopment was increased effluent discharge standards by the Environment Protection Authority (EPA), which the original plant could not provide.

A contract for the redevelopment was awarded to Simon Engineering Australia (SEA) in 2003. In January 2005 Henry Walker Elton, the owner of SEA, went into administration. At the time SEA went into administration, CWW was in discussions with SEA regarding the plant design based on incorrect volume of flows. Upon resuming control of the plant CWW engaged Sinclair Knight Merz (SKM) to conduct a design review. The review recommended a number of changes to make the plant compliant with the EPA licence. As a result an additional \$20m was required to complete the project. Total expenditure was \$39m and the plant was fully commissioned on 29 December 2006.

West Werribee Dual Water Supply Scheme

The objective of this scheme is to supply 1,750 ML per annum of Class A recycled water from Melbourne Water's Western Treatment Plant (WTP) to 9,250 residential customers at three new estates, recreational reserves managed by Wyndham City Council and some non-residential customers. A plant was to be built at WTP by MWC to reduce the salt levels in the recycled water for CWW and Werribee Irrigation District customers.

The functional design for the project was completed by engineering consultants GHD in mid-2006. The study determined the size and alignment of the recycled water mains, storage requirements and the infrastructure required at the WTP interface, as well as management of health and environmental issues, operation and maintenance of the scheme and refinement of cost estimates. An estimated \$17.5m was required for the construction of transfer and storage infrastructure to supply Class A recycled water from WTP.

The salt reduction plant will no longer be built by MWC and CWW is investigating building its own plant with an initial capacity of 6 ML/day and allowance for future augmentation as required. There is also an opportunity to expand the scheme to capture new residential zones in the revised Wyndham urban growth boundary. The expanded scheme will increase the recycled water uptake from 1,750 ML per annum to 3,100 ML per annum and service an additional 9,550 lots.

To date approximately 485 properties have been provided with connections to recycled water reticulation system. Potable water is currently being supplied through the recycled water reticulation system as an interim measure until the recycled water distribution infrastructure between the Western Treatment Plant and the West Werribee area is completed.

Werribee Technology Precinct

The project provides approximately 315 ML per annum of Class A recycled water from Melbourne Water's Western Treatment Plant (WTP) to customers within the Werribee Technology Precinct. Stage 1 is now complete and the recycling scheme is operating. The feasibility of expanding the scheme to service additional customers in the Werribee Technology Precinct and the adjoining areas is currently being investigated.

Altona Golf Courses

The Altona Treatment Plant (ATP) Recycling Scheme was to deliver Class A recycled water from the ATP to Koorngal and Sanctuary Lakes Golf Courses, a local Council reserve and a stand pipe facility. It has now been combined with another scheme to provide recycled water to an industrial customer, Qenos. The combined project is scheduled for completion in December 2010. While expansion of the scheme has delayed the delivery of recycled water to the golf courses, it will provide significant economies compared to two separate schemes.

IT Projects

The major IT projects completed were a new trade waste management system, a new Graphical Information System, a billing system (Gentrack) upgrade, and a new Asset Services Management System. The latter incorporates mobile field units (laptops) for more efficient job scheduling, dispatch of new jobs to trucks in the field and direct input of job-data by field crews.

Corporate – head office refurbishment

The first Water Plan included expenditure of \$2.5m for the refurbishment of CWW's head office complex. There was some delay to investigate the option of a new building on a new site. The refurbishment option was selected, but was put on hold pending the outcome of the VCEC's review into the Melbourne Retailers. The office refurbishment has since recommenced and is expected to be completed in the forthcoming water plan period.

2.4 Capital and Operating Expenditure

Capital Expenditure

Table 2.2 compares planned versus actual expenditure in the first Water Plan period. The preceding year, 2004-05 is included because an opening regulatory asset value was set by the Minister as at 1 July 2004.

Table 2.2 Planned versus Actual Capital Expenditure (\$2009m)

	2004–05	2005–06	2006–07	2007–08	Total
Water Plan	65.4	46.6	48.3	42.7	203.0
Actual	48.4	65.2	62.0	68.1	243.7
Variance	17.0	(18.6)	(13.7)	(25.4)	(40.7)

The individual projects contributing to the \$40.7m increased expenditure were:

Table 2.3 Projects contributing to the variance in capital expenditure (\$2009m)

Category	Capital Expenditure (\$2009m)		
	Actual	Water Plan	Variance
Altona Treatment Plant	34.2	13.9	(20.3)
Growth	49.5	41.0	(8.5)
Renewals	90.6	65.4	(25.2)
Developer Reimbursements	23.9	18.2	(5.7)
Metering	6.9	6.2	(0.7)
CWW Head Office – Refurbishment	-	2.5	2.5
Other (including Corporate)	2.6	3.3	0.7
Recycling	10.0	24.8	14.8
Information Technology	26.2	27.7	1.5
Total	243.7	203.0	(40.7)

The reasons for variances associated with Altona Treatment Plant, Head Office refurbishment and recycling are given in section 2.3. The other key variances are:

- Growth - Point Cook diversion to Western Trunk Sewer was brought forward to relieve excess sewer flows at ATP. Construction costs for Kororoit Creek Main Sewer increased because trenchless technology was required due to unforeseen environmental constraints. Stage two of the water main construction at Point Cook was brought forward due to more rapid growth in the area than forecast. In addition an alternative alignment was selected to avoid sites of environmental significance and a length under the Princess Highway had to be bored.
- Renewals increased due to the adoption of an Asset Criticality Risk Model (ARCM) which involves the assessment of each asset's condition and consequence of failure. The increase has removed a number of high risks for the short-term and is expected to be followed by a lower level of on-going expenditure on renewals.
- Developer reimbursements - shared assets above basic size that were previously funded in-part by the developers are now being fully funded by CWW.

Operating expenditure

Drought and water restrictions led to lower than expected water demand, and a subsequent reduction in bulk water charges. However, additional costs were incurred for the administration of water restrictions, increased bursts and leaks (due to ground movement induced by the extreme dry period), and an acceleration of water conservation programs (in response to both the drought and our obligation to implement the Government's Central Region Sustainable Water Strategy).

Table 2.4 compares planned with actual expenditure in the first Water Plan period.

Table 2.4 Operating Expenditure (\$2009m)

	2005–06	2006–07	2007–08	Total
MWC Bulk Charges				
Water Plan	104.8	109.2	112.7	326.7
Actual	104.9	97.1	93.5	295.5
Variance	(0.1)	12.1	19.2	31.2
CWW Opex				
Water Plan	79.5	78.6	77.6	235.7
Actual	76.9	81.6	83.7	242.2
Variance	2.6	(3.0)	(6.1)	(6.5)
Total Opex				
Water Plan	184.3	187.8	190.3	562.4
Actual	181.8	178.7	177.2	537.7
Variance	2.5	9.1	13.1	24.7

Revenue

Revenue in the water plan period was based on the assumption of average weather conditions. Drought and the introduction of water restrictions reduced demand, and consequently reduced CWW's revenue.

Table 2.5 Revenue (\$2009m)

	2005–06	2006–07	2007–08	Total
Water Plan	257.2	265.0	271.2	793.4
Actual	252.8	242.5	244.3	739.6
Variance	(4.4)	(22.5)	(26.9)	(53.8)

2.5 Changes in Obligations

Key changes to the regulatory and legislative obligations were obligations to develop a Water Supply-Demand Strategy for Melbourne, and to implement the Government's Central Region Sustainable Water Strategy. These were expressed in the Statement of Obligations issued in June 2007. Expenditures on these programs during the first Water Plan period were:

- WaterMAPs program for customers using greater than 10ML per annum (Top 1500 Industrial Commercial Sector Program) with expenditure of \$0.8m
- Showerhead Exchange program with expenditure of \$2.6m.

3 Service Outcomes

The service standards and obligations outlined in this Chapter are those that CWW intends to deliver over the next regulatory period, and they also underpin the expenditure proposals in Chapter 4.

3.1 Customer Drivers

Customer consultation was undertaken in the lead-up to the August 2007 draft of the Water Plan. It focused on working with existing customer committees and conducting market research. It has not been repeated for this Water Plan.

The Customer Committee involvement prior to the August 2007 draft of the Water Plan addressed the whole water plan, with most discussion on tariff proposals. The Committee was not reconvened for this Water Plan because CWW is no longer proposing any tariff (structure) changes, in order to be able to demonstrate that prices do no more than double.

The August 2007 draft of the Water Plan was placed on CWW's website on 14 August 2007. No public comments were received, although this lack of comment may have been influenced by the associated text on the website saying that this draft Water Plan had been superseded by the Government's announcement on prices.

The market research focussed on satisfaction with service levels, and it indicated high customer satisfaction with only limited suggestions on service changes. Key areas highlighted as requiring new or ongoing focus were:

- increased water savings
- 100 per cent renewable energy offsets
- 100 per cent recycling of biosolids
- reductions in water and sewer interruptions.

Choice modelling was used to deduce what customers were willing to pay for these improvements. Unfortunately the modelling was conducted before CWW had identified the need for large price increases to pay for supply augmentations.

Given the current high satisfaction with service standards, and the expected price increases due to water supply augmentations, CWW is proposing a largely "business-as-usual" approach to service standards.

3.2 Service Standards

To reflect an approach of business-as-usual, CWW proposes to achieve the average performance over the last three years, 2005-6 to 2007-08, except for two standards.

The service standards for 'account enquiries answered within 30 seconds' and 'telephone calls answered within 30 seconds' were low in 2006-07 (explained in section 2.1), so the target performance is expected to exceed the average performance of the last three years. The target level is consistent with the performance achieved in 2005-06 and 2007-08.

Historic data for

- unplanned water supply interruptions restored in five hours,
- average unplanned customer minutes off supply; and
- average duration of unplanned water supply interruptions

was adjusted to reflect the change in field practice introduced as a water conservation initiative in January 2007.⁴ The adjustment involved re-calculating the duration of each interruption after replacing the time of shut-off with the time of first arrival on-site. This adjustment was made for each unplanned interruption that occurred in 2005-06 and before January 2007. This replicated what would have occurred had the change in field practice been in place for the whole three-year period. Table 3.1 shows the adjusted historic performance, with footnotes showing the actual reported performance.

⁴ Prior to January 2007 when a field supervisor attended a burst water main, the main was 'throttled-back' to reduce flow while maintaining water supply to customers until a repair crew was able to attend to the site. In January 2007 this practice was changed, and burst water mains are now turned off immediately by the field supervisor, except if this would lead to a threat to public health or significant community or business disruption.

Table 3.1 Service Standards – Historical Performance and Targets

Key Performance Indicator	Historical Performance						First Regulatory Period			Last 3-year Average	Proposed Target 2008-09 to 2012-13
	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		
Unplanned water supply interruptions per 100 km (number)	62.0	76.9	56.9	81.7	74.7	61.2	53.7	67.5	62.1	61.1	61.1
Average time taken to attend bursts and leaks (P1) (minutes)	31.0	28.0	24.4	27.2	24.2	25.0	24.0	24.5	24.0	24.1	24.1
Average time taken to attend bursts and leaks (P2) (minutes)	50.0	50.0	38.1	45.8	37.9	35.4	36.7	33.0	33.3	34.3	34.3
Average time taken to attend bursts and leaks (P3) (minutes)	746	719	410.9	501.5	339.6	279.5	258.0	222.6	226.2	235.6	235.6
Unplanned water supply interruptions restored within five hours (per cent)	98.7	99.5	98.8	98.8	99.1	99.5	81.6 ⁵	82.5 ⁶	94.3	86.1	86.1
Planned water supply interruptions restored within 5 hours (per cent)	82.9	93.8	90.4	87.3	90.0	92.8	94.1	92.3	93.6	93.3	93.3
Average unplanned customer minutes off water supply (minutes)	44.2	48.1	33.4	45.7	41.6	33.6	37.9 ⁷	63.6 ⁸	41.4	47.6	47.6
Average planned customer minutes off water supply (minutes)	18.4	13.8	12.1	4.7	11.2	12.0	7.3	7.6	8.5	7.8	7.8
Average frequency of unplanned water supply interruptions (number per customer per year)	0.39	0.44	0.307	0.421	0.391	0.317	0.285	0.340	0.297	0.307	0.307

⁵ Adjusted value reflects what would have been achieved under the current field practice of shut-off at time of arrival; actual reported value was 99.5

⁶ Ditto; actual reported value was 96.8

⁷ Ditto; actual reported value was 27.0

⁸ Ditto; actual reported value was 40.3

Table 3.1 Service Standards – Historical Performance and Targets (Contd..)

Key Performance Indicator	Historical Performance						First Regulatory Period			Last 3-year Average	Proposed Target 2008-09 to 2012-13
	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		
Average frequency of planned water supply interruptions (number per customer per year)	0.11	0.09	0.074	0.031	0.070	0.089	0.050	0.060	0.065	0.058	0.058
Average duration of unplanned water supply interruptions (minutes)	114.0	110.0	109.0	108.0	106.0	105.0	195.5 ⁹	193.2 ¹⁰	137.9	175.5	175.5
Average duration of planned water supply interruptions (minutes)	175.0	161.0	163.0	150.0	159.0	140.0	140.8	142.1	134.0	139.0	139.0
Number of customers experiencing more than 5 unplanned water supply interruptions in a year (number)	287	282	265	410	378	19	0	85	106	64	64
Unaccounted for water (per cent)	12.0	11.6	10.4	11.4	10.0	9.6	9.8	9.3	8.4	9.2	9.2
Sewerage blockages per 100 km (number)	28.90	29.70	29.2	35.3	32.5	29.0	26.0	26.0	28.7	26.9	26.9
Average time to attend sewer spills and blockages (minutes)	40.00	42.00	34.8	29.5	19.9	20.30	23.0	22.4	24.9	23.4	23.4
Average time to rectify a sewer blockage (minutes)	192.00	192.00	144.0	162.0	142.0	129.0	115.6	106.7	125.3	115.9	115.9
Spills contained within 5 hours (per cent)	100.00	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.00
Number of customers experiencing more than 3 sewer blockages in a year (number)	3	0	0	4	0	0	0	0	0	0	0

⁹ Adjusted value reflects what would have been achieved under the current field practice of shut-off at time of arrival; actual reported value was 95.9

¹⁰ Ditto; actual reported value was 118.8

Table 3.1 Service Standards – Historical Performance and Targets (Contd..)

Key Performance Indicator	Historical Performance						First Regulatory Period			Last 3-year Average	Proposed Target 2008-09 to 2012-13
	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		
Complaints to EWOV (number per 1000 customers)	-	-	-	-	-	0.55	0.35	0.61	0.68	0.55	0.55
Telephone calls answered within 30 seconds (per cent)	-	-	-	-	-	81.7	81.7	71.6	82.4	78.6	80.0
Water quality complaints (number) per 1000 customers	1.96	1.88	1.8	1.1	0.9	1.4	1.4	0.9	1.1	1.1	1.1
Average time to rectify water faults (days)	1	1.5	0.9	2.5	1.6	0.9	0.9	1.1	1.0	1.0	1.0
Water main breaks per 100 km (number)	70.1	58.3	56	102.9	91.6	67.5	60.5	85.7	68.3	71.5	71.5
System fault calls answered within 30 seconds (per cent)	-	-	94.9	84.3	86.6	90.9	92.6	93.7	93.7	93.3	93.3
Account enquiries answered within 30 seconds (per cent)	-	-	59.2	63.6	77.3	77.3	78.9	65.3	79.4	74.5	80.0
Interruptions to sewerage services restored within 5 hours (per cent)	95.4	-	97.8	92.4	94.9	96.8	97.2	98.7	97.0	97.6	97.6
Spills within a house contained within 1 hour of notification (per cent)	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0
P1 bursts responded to within 1 hour (per cent)	99.8	99.8	100.0	99.3	99.1	99.9	100.0	99.6	99.8	99.8	99.8
Customer correspondence responded to within 10 working days (per cent)			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sewer spills per 1000 properties (number)	-	-	-	-	2.82	2.59	2.05	2.20	1.16	1.8	1.8

3.3 Guaranteed Service Levels

In 2005–06 CWW introduced six residential guaranteed service level payments (GSLs) and commenced collecting data for two possible future GSLs for planned water supply interruptions not restored in five hours and planned water supply interruptions in peak periods. CWW has also reviewed the application of GSLs to its non-residential customers.

However, CWW is not proposing any changes to its GSLs, consistent with a price constrained period. Administrative costs are part of CWW's overall operating expenditure. There is no anticipated capital expenditure.

The number of GSL payments has been affected by the change in field practice introduced in January 2007⁴, so the forecast number of events is based on the actual number of events that occurred in 2007-08.

The proposed GSLs are:

Table 3.2 Proposed Guaranteed Service Levels and Payments – residential only

Guaranteed Service	Payment to each residential customer	2005-06 Actual	2006-07 Actual	2007-08 Actual	2008-09 to 2012-13 Forecast
No more than five unplanned interruptions in a twelve month period	\$25	149	164	221	220
No more than three sewerage service interruptions in a twelve month period	\$25	0	0	0	0
Unplanned water supply interruptions to be restored within five hours of notification (eight hours during periods of water restrictions)	\$25	284	2 963	5 166	5 200
Sewerage service interruptions to be restored within five hours of notification	\$25	93	53	99	100
Sewer spills to be contained within five hours of notification	\$25	0	0	0	0
Sewer spills within a house to be contained within an hour of notification	\$500	0	0	0	0
Total Cost (\$ nominal)		\$13 150	\$79 500	\$137 150	\$138 000

3.4 Regulatory Obligations

3.4.1 Department of Human Services

The business-as-usual activities include water quality monitoring, certification, operations, reporting, incident management, and policy and customer service. It also includes administration of concession payments to customers.

The only new activity relates to recycled water and the production of Health and Environment Management Plans for each recycled water scheme.

3.4.2 Environment Protection Authority

The EPA Victoria's publication 1069, *Principles to Establish EPA Environmental obligations for Water Businesses for the 2008-2013 Pricing Determination*, provided guidance on EPA's environmental requirements. CWW has addressed these requirements through the following projects.

Business-as-usual projects include:

Water Conservation and Resource Efficiency

- Showerhead exchange/retrofit programs
- Water management action plans (customers using at least 10ML/annum)
- Leak management program
- Recycling sewage and biosolids

Sewage Management

- Resource management plans (reducing industrial inputs of pollutants of concern (e.g., salt, mercury and cadmium) to the sewerage system).
- Supply of recycled water to the Altona Industrial Precinct, the Wyndham growth corridor and the Werribee Technology Precinct.
- Sewerage system hydraulic improvement program to meet the 1 in 5 year wet weather compliance requirements.
- Achieve and maintain Hazard Analysis Critical Control Point (HACCP) accreditation to ISO 22000 for Trade Waste Management.

Catchment, Waterway and Groundwater Management.

- Monitor groundwater, discharge effluent quality and conduct Port Phillip Bay studies in accordance with Altona Treatment Plant discharge licence.

Assessment, Monitoring, Auditing and Reporting.

- Maintain ISO 14001 accreditation
- Monitor Altona Treatment Plant discharge in line with EPA Vic approved monitoring program.

The major new activities and their costs are:

- Reticulated sewerage system for Williamstown industrial precinct (\$0.9 capex).
- Monitoring program for Port Phillip Bay (\$0.2m opex),
- Washing machine changeover investigation (\$0.05m opex),
- Investigating renewable energy opportunities (\$0.05m opex),and

3.4.3 Department of Sustainability and Environment

Table 3.3 shows the key projects that CWW proposes to deliver its obligations within the Statement of Obligations issued by the Minister for Water in June 2008:

Table 3.3 Projects to deliver DSE obligations (\$2009m)

Capital Expenditure 2008-09 to 2012-13	Operating Expenditure 2008-09 to 2012-13
Recycling	
<ul style="list-style-type: none"> • Altona Recycled Water Project: \$59m 	<ul style="list-style-type: none"> • Altona Recycled Water Project: \$4.5m
<ul style="list-style-type: none"> • West Werribee Dual Water Supply Scheme: \$72m 	<ul style="list-style-type: none"> • West Werribee Dual Water Supply Scheme: \$1.2m
Water Conservation	
	<ul style="list-style-type: none"> • Behavioural change program: \$9.4m • Showerhead program: \$11.9m • Clothes-washer program: \$0.5m • Industrial and commercial sector water savings program: \$3.3m • Non-revenue water program (leak detection): \$3.8m
Cleaner Production	
	<ul style="list-style-type: none"> • Cleaner Production program: \$7.2m

DSE has sought quantifiable outcomes for seven activities listed in Table 3.4. The results listed under activity 1a arise from the purchase of 10 per cent green energy (Victorian Government policy) and the purchase of offsets for the energy consumed at the current Altona Sewerage Treatment Plant and its proposed salt reduction plant (commitment in EPA works approval).

Table 3.4 Performance targets for DSE

Activity	2008-09	Target			
		2009-10	2010-11	2011-12	2012-13
1a. CO ₂ generated ¹¹ (tonnes)	9 400	9 100	14 200	18 000	18 000
1b. CO ₂ green ¹¹ energy / offset purchases (tonnes)	5 900	5 700	10 900	14 700	14 700
1c. CO ₂ showerhead replacements (tonnes)	9 200	10 300	10 000	10 000	10 000
2. Recycled water ¹¹ (ML)	320	370	1 710	3 250	3 440
3. Biosolids reused (%)	100	100	100	100	100
4. Sewer backlog connections (lots)	0	60	13	13	0
5. Expenditure on knowledge and learning ¹² (\$2009m)	3.4	4.1	3.6	3.6	3.5
6. Water Conservation – total potable water use per person ¹³ (litres per person per day)	323	316	320	318	308
7. Savings from shared services and bulk procurement (\$2009m)	(1.0)	(1.5)	(1.5)	(1.5)	(1.5)

3.4.4 Essential Services Commission

The business-as-usual obligations include those outlined in

- Customer Service Code
- Regulatory Audit Framework
- Performance Reporting Framework
- Water Industry Regulatory Accounting Code

The business-as-usual obligations for service standards and guaranteed service level payments are detailed earlier in sections 3.2 and 3.3.

In its Supplementary Guidance on Water Plans (September 2008), ESC identified additional service standards for:

- greenhouse gas reductions/green energy (CO₂ equivalent emissions)
- recycled water (per cent)
- biosolids reused (per cent)

¹¹ The Altona Recycled Water Project is forecast to be operating by mid 2010-11 and, to comply with the EPA works approval, will have energy offsets.

¹² Comprises 30 per cent Smart Water Fund, 24 per cent cleaner production, 21 per cent staff training, 8 per cent strategies/investigations, 7 per cent conferences, 7 per cent research contributions (eg. new water alliance), 4 per cent CRC contributions .

¹³ These water use figures are a result of water conservation programs, water recycling and water restrictions (see Chapter 5 for more details). The CRSWS “accelerated” targets for CWW are total water use of 405 lpcd by 2015 (30 per cent reduction on the average of the 1990’s) and reductions in non-residential water use of 7.45 GL per annum by 2015 (1.75 GL share of 5 GL to be saved by the >10ML per annum customers; 5GL of the 1 per cent per annum savings by non-residential customers from the Altona Recycled Water Project and 0.7GL share of the remainder of the 8GL).

- sewer backlog connections (small town sewerage scheme) (number)
- environmental discharge licence requirements
- drinking water quality compliance with standards

Greenhouse gas reductions/green energy is shown as three separate targets in Table 3.4. It has been segregated in order to show the purchases of green energy and off-sets relative to the energy consumed, and also to show the positive impact of the showerhead exchange program as an energy offset program, if it was to be acknowledged as such¹⁴.

Recycled water has been shown in Table 3.4 as a volume rather than a percentage. The footnote to Table 3.4 explains the CRSWS obligations that are driving this target. In 2012-13 the recycled volume of 3,440 ML is equivalent to approximately 4 per cent of bulk water purchases or approximately 66 per cent sewage delivered to the Altona Treatment Plant.¹⁵

Biosolids reused and sewer backlog connections are also shown in Table 3.4. The sewer backlog connections are non-residential properties in the Williamstown and Laverton North areas, for projects scheduled for completion in 2008-09 and 2009-10 respectively.

The environmental discharge licence requirement (per cent of EPA licence limits met) is forecast to be 100 per cent for the forthcoming regulatory period¹⁶. The drinking water quality compliance will be maintained at 100 per cent (all seven¹⁷ safe drinking water standards met), consistent with historical performance.

¹⁴ The showerhead exchange program is not recognised as an energy offset program because its primary purpose is water conservation. CWW contends it should be recognised for its dual benefits.

¹⁵ Not all recycled water is sourced from the Altona Treatment Plant (see Table 5.2 for more detail).

¹⁶ Historically it has been 94%, 94%, 63%, 79%, and 100% in the period 2003-04 to 2007-08 respectively.

¹⁷ E. coli, four disinfection by-products, aluminium and turbidity.

4 Revenue Requirement

4.1 Overview of Revenue Requirement

City West Water (CWW) expects to provide services to 33 000 new customers over the four-year period 2009-10 to 2012-13. While service standards and regulatory obligations remain largely unchanged, the major driver of cost increases will be bulk charges (77 per cent of the total increase), recycling, as well as real increases in the procurement of works and services for a growing customer base.

Table 4.1 Drivers of Increase in Revenue Requirement from 2007-08 to 2012-13 (\$2009m)

Component	Increase in Revenue Requirement (\$m)
MWC bulk charges	158
Re-allocation of RAV	7
Return on/of new assets (excl. recycling)	10
Recycling	16
CWW opex	15
Deferred regulatory depreciation	(6)
Other	(2)
Total	198

Figure 4.1 Drivers of Revenue Increase from 2007-08 to 2012-13

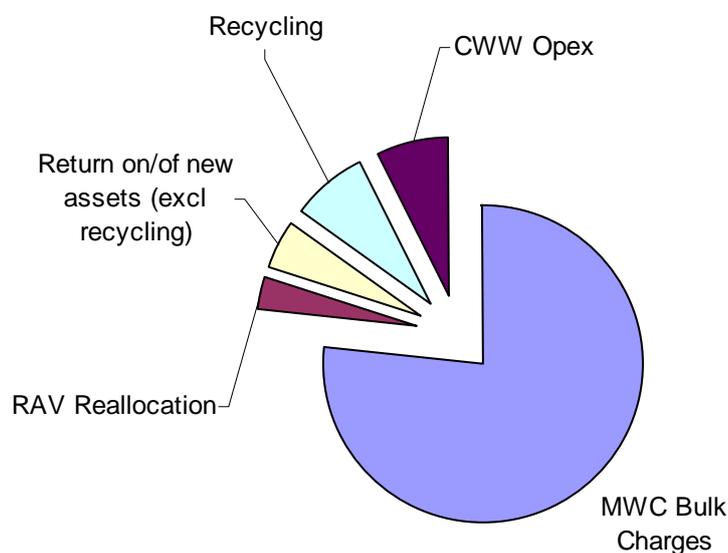


Table 4.2 summarises the components of the required revenue, and the following sections explain the derivation of each component.

Table 4.2 Summary of CWW's Revenue Requirement (\$2009m)

	History	First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Bulk charges (water and sewer)	109.06	104.89	97.08	93.59	117.46	137.31	169.89	207.99	251.77
CWW operating expenditure	76.80	76.83	81.55	83.68	89.54	90.97	92.72	94.74	95.92
Total operating expenditure	185.86	181.72	178.63	177.27	207.00	228.29	263.52	304.86	350.13
Return on assets	44.31	45.28	46.18	46.83	65.55	70.73	77.63	83.54	86.48
Regulatory depreciation	20.84	24.04	27.13	29.71	11.99	15.21	18.92	22.69	25.45
Adjustments from first and second periods	-	-	-	-	-	-	-	-	-
Benchmark tax liability	3.36	3.50	3.78	4.27	0.13	4.61	5.62	6.42	7.25
Total revenue requirement	254.37	254.54	255.72	258.09	284.66	318.84	365.69	417.51	469.32

4.2 Bulk Charges (water and sewer)

Bulk charges are paid to Melbourne Water Corporation (MWC), and exclude bulk recycled water costs. The bulk recycled water costs are included in CWW's operating expenditure, as it is expected that CWW will build and operate the recycled water treatment facilities, even though they could be on MWC land and extracting treated sewage from MWC facilities.

The bulk charges for water and sewer are based on price proposals supplied by MWC; specifically

Table 4.3 MWC Bulk Prices (\$2009)

	2008-09	2009-10
Water		
Fixed charge (\$/month)	65 945.36	2 155 461.00
Volumetric charge (\$/ML)	650.40	593.00
Sewage		
Fixed charge (\$/month)	3 604 739.11	3 541 826.00
Volumetric charge (\$/ML)	76.92	177.00
Trade Waste		
Volumetric charge (\$/ML)	60.81	177.00
BOD ¹⁸ (\$/tonne)	38.57	10.00
TDS ¹⁹ (inorganic) (\$/tonne)	12.02	24.00
TKN ²⁰ (\$/tonne)	782.69	167.00
SS ²¹ (\$/tonne)	6.84	2.00

The prices for 2009-10 were escalated by 21.9 per cent per annum for the subsequent three years of the forthcoming regulatory period. The price proposals were applied to the forecast demands in Chapter 5 to derive the bulk charges:

Table 4.4 MWC Bulk Charges (\$2009m)

	2008-09 Forecast	2009-10	2010-11	2011-12	2012-13
Water					
Fixed charge	0.79	25.87	31.53	38.43	46.85
Volumetric charge	61.85	56.00	70.12	86.09	103.37
Total (water)	62.64	81.87	101.65	124.52	150.22
Sewage					
Fixed charge	43.26	42.50	51.81	63.16	76.99
Volumetric charge	9.51	11.58	14.56	18.01	21.76
Total (sewage)	52.77	54.08	66.37	81.17	98.75
Trade Waste					
BOD ¹	0.48	0.10	0.13	0.14	0.16
TDS ²	0.39	0.68	0.81	0.99	1.20
TKN ³	0.94	0.13	0.15	0.17	0.20
SS ⁴	0.03	0.01	0.01	0.01	0.02
Total (trade waste)	1.84	0.92	1.10	1.31	1.58
Total	117.25	136.87	169.12	207.00	250.55

¹⁸ BOD – biological oxygen demand

¹⁹ TDS – total dissolved solids in 2008-09 and inorganic TDS in following years

²⁰ TKN – total nitrogen in 2008-09 and total kjeldahl nitrogen in the following years

²¹ SS – suspended solids

4.3 CWW Operating Expenditure

Forecast operating expenditure is shown in Table 4.6. It excludes the direct operating expenditure²² attributable to the collection of parks and drainage rates, both of which are defined as non-prescribed services. The increases in CWW operating expenditure can be largely attributed to:

- MWC's 21.9 per cent per annum price increase in bulk charges. Bulk charges represent 72 per cent of the total operating expenditure increase in 2008-09, and they represent 95 per cent of the increase over the forthcoming regulatory period.
- recycled water costs associated with investigation of new projects, including opportunities to use stormwater and groundwater, in 2008-09 and maintenance costs for the new recycled water plant at Altona from 2010-11 onwards.
- increased costs associated with energy (including greenhouse gas offset) at the new recycled water plant at Altona.
- corporate costs associated with:
 - the delivery of CRSWS initiatives, including Cleaner Production
 - growth in IT systems and support
 - staff training and development, including a new Technical Officer Development Program.
- customer service and billing costs associated with a growing customer base.
- operations and maintenance costs associated with a growing customer base, together with expected real increases in market rates.

Table 4.5 Components of Year-On-Year CWW Operating Expenditure Increases (\$2009m)

	2008–09 (\$m)	2009–10 (\$m)	2010–11 (\$m)	2011–12 (\$m)	2012–13 (\$m)
Bulk charges (incl recycled and bulk entitlements)	23.9	19.9	32.6	38.1	43.8
Corporate	3.1	2.3	(0.2)	(0.2)	(0.3)
Productivity savings	(1.2)	(2.1)	-	-	0.2
Customer Service and billing	(0.2)	0.1	-	0.2	0.2
Operations & Maintenance	3.5	1.2	0.9	0.9	0.7
Treatment	0.4	0.3	2.0	2.3	0.2
GSL Payments	-	-	-	-	-
Licence Fees	0.2	(0.4)	0.1	-	0.5
Total	29.7	21.3	35.4	41.3	45.3

²² Forecast to be \$1.27m per annum in the period 2008-09 to 2012-13.

Productivity

Productivity savings is forecast to average \$2.84m per annum over the forthcoming water plan period and includes the \$1.5m per annum efficiency expected to be achieved from the development of a shared services program with the other metropolitan water businesses. No expenditure has been forecast which may be necessary to extract these savings.

Table 4.6 CWW Operating Expenditure (\$2009m)

	2004-05	First Regulatory Period			2008-09	Forthcoming Regulatory Period			
		2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Water									
Operations & Maintenance	14.14	15.27	18.32	17.68	18.71	19.33	19.65	20.12	20.62
Bulk charges	59.68	57.91	52.67	49.70	62.65	82.03	101.97	124.89	150.64
Treatment	-	-	-	-	-	-	-	-	-
Customer Service and billing	7.68	6.78	6.73	8.22	7.97	8.08	8.05	8.16	8.27
GSL Payments	-	0.01	0.05	0.06	0.07	0.07	0.07	0.07	0.07
Licence Fees									
Corporate	12.97	12.20	13.95	15.18	16.30	16.76	16.95	16.98	17.12
Other operating expenditure									
Total Water	94.48	92.17	91.73	90.85	105.68	126.26	146.69	170.21	196.72
Sewerage									
Operations & Maintenance	12.99	11.99	12.51	11.56	13.36	13.42	13.80	14.22	14.39
Bulk charges	49.38	46.98	44.39	43.81	54.70	55.13	67.72	82.77	100.66
Treatment	1.97	1.77	2.16	2.54	2.94	3.23	3.41	3.77	3.82
Customer Service and billing	3.95	3.85	3.55	3.92	3.98	3.98	3.98	4.04	4.10
GSL Payments	-	0.01	0.05	0.06	0.07	0.07	0.07	0.07	0.07
Licence Fees	-	-	-	-	-	-	-	-	-
Corporate	10.12	9.74	10.07	10.65	11.05	11.09	10.98	11.04	11.09
Other operating expenditure									
Total Sewerage	78.42	74.34	72.73	72.54	86.09	86.91	99.97	115.91	134.14

Table 4.6 CWW Operating Expenditure (\$2009m) (Contd...)

	2004-05	First Regulatory Period			2008-09	Forthcoming Regulatory Period			
		2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Recycled Water									
Operations & Maintenance	0.80	0.78	0.55	0.61	1.29	1.85	1.99	2.00	2.05
Bulk charges	-	-	0.02	0.08	0.11	0.16	0.20	0.33	0.47
Treatment	-	-	-	-	-	-	1.85	3.84	3.95
Customer Service and billing	0.44	0.45	0.46	0.55	0.54	0.55	0.54	0.55	0.56
GSL Payments	-	-	-	-	-	-	-	-	-
Licence Fees	-	-	-	-	-	-	-	-	-
Corporate	1.51	1.23	1.30	1.30	1.57	1.54	1.52	1.52	1.51
Other operating expenditure									
Total Recycled Water	2.76	2.46	2.34	2.54	3.51	4.10	6.11	8.25	8.55
Licence Fees									
Essential Services	0.63	0.63	0.43	0.54	0.74	0.36	0.36	0.36	0.89
Commission									
Department of Human	0.12	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12
Services									
Environment Protection	0.06	0.06	0.07	0.05	0.05	0.05	0.11	0.11	0.11
Authority									
Total Licence fees	0.81	0.80	0.61	0.70	0.91	0.53	0.59	0.59	1.12
Environmental Contributions	9.42	11.95	11.24	10.65	10.79	10.48	10.19	9.90	9.62
Grand Total	185.88	181.72	178.65	177.28	206.98	228.29	263.55	304.86	350.15

Bulk charges

Bulk charges forecast expenditure is based on the prices advised by MWC. The bulk charge expenditure is forecast to rise by approximately 18 per cent real from 2008-09 to 2010-11, and 21.9 per cent real each year from 2010-11 to 2012-13. The forecast assumes Stage 3a water restrictions will be in place in 2009-10, Stage 2 in 2010-11, Stage 1 in 2011-12 and Permanent Water Saving Rules in 2012-13.

Environmental contribution

Forecast environmental contribution is that advised by DSE, which averages approximately \$10m per annum in real terms over the forthcoming regulatory period. It is a constant \$10.787m per annum in nominal dollars.

Customer Service and Billing

The increase in customer service and billing expenditure, including collection activities, is due to continued growth in the customer base. The customer base has been increasing at approximately 3 per cent per annum.

Operations and Maintenance

CWW's asset base has grown considerably over recent years. Since 1997, 942 km of water mains (an increase of 30 per cent) and 678 km of sewers (an increase of 24 per cent) have been added to the network. In addition, an increase in asset condition monitoring (\$0.4m per annum) which commenced in 2008-09 will contribute to the cost increase over the forthcoming regulatory period.

Factors pushing up costs beyond CPI increases include the shortage of skilled contractors due to increased activity across Australia and higher prices for materials including steel and plastic pipes.

Water and sewerage infrastructure construction costs in the Australian economy will rise by approximately 5.7 per cent per annum for water distribution, 4.2 per cent for reticulation, 3.2 per cent for sewerage transfer and 2.8 per cent for treatment over the coming 4 years. This estimate was prepared by Econtech²³. In calculating the real increase, Econtech took into account the recent cost pressure faced by the water industry and its likely impact into the forthcoming regulatory period, including the level of projected activities within the water industry.

For simplicity, CWW has applied a single real increase of 2.5 per cent (the Econtech figures above are nominal) to civil and scheduled maintenance costs.

Treatment

Treatment costs for recycled water is forecast to increase when the recycled water treatment plant at Altona is commissioned.

²³ Update of Construction Price Indexes, Econtech Pty Ltd, 29 July 2008

4.4 Capital Expenditure

As with operating expenditure, all capital expenditure has been escalated by 2.5 per cent per annum above the CPI.

Capital expenditure forecast over the forthcoming regulatory period is:

Table 4.7 Summary of Capital Expenditure (\$2009m)

Description	2008–09 (\$m)	Forthcoming Regulatory Period				Total
		2009–10 (\$m)	2010–11 (\$m)	2011–12 (\$m)	2012–13 (\$m)	
Renewals	37.5	40.9	38.4	36.2	35.2	188.2
Improvements in Service	-	-	-	-	-	-
Compliance	10.3	46.3	66.6	38.8	3.2	165.2
Growth	32.5	38.1	41.4	23.6	12.6	148.2
TOTAL	80.3	125.3	146.4	98.6	51.0	501.6

Renewal Expenditure

Renewals expenditure (Table 4.8) is forecast to average approximately \$37.6m per annum over the forthcoming water plan period, compared to 2007-08 actual of \$36.5m.

Table 4.8 Renewals Expenditure (\$2009m)

Description	2008–09 (\$m)	Forthcoming Regulatory Period				Total
		2009–10 (\$m)	2010–11 (\$m)	2011–12 (\$m)	2012–13 (\$m)	
Risk renewal	20.3	22.0	21.3	20.6	19.6	103.8
Renew – information technology	8.3	9.1	7.2	6.6	6.5	37.7
KPI renewal	4.7	4.8	5.0	5.2	5.4	25.1
CWW head office – fittings	1.2	1.6	1.6	0.1	0.1	4.6
Efficiency renewal	1.0	1.0	1.0	1.1	1.1	5.2
Renew – metering	0.5	1.1	1.1	1.1	1.2	5.0
Facility renewal	1.3	1.1	1.0	1.3	1.2	5.9
Other	0.1	0.1	0.1	0.1	0.2	0.6
	37.4	40.8	38.3	36.1	35.3	187.9

A new Asset Risk Management Model has been used that considers all the physical details of the asset, its performance history and current condition when determining the likelihood of failure. The methodology is based on the Australian/New Zealand Standards for Risk Management AS/NZS 4360:1999 and involves the assessment of each asset's condition and consequence of failure assessments. The model also considers social, environment, economic as well as the impact of not meeting service standards when considering the consequence of failure.

Expenditure on renewal of Information services is driven by:

- Information records management and scanning. This project will electronically scan and store irreplaceable documents such as field notes and maps.
- IT hardware and software, including the servers and application development.
- Scheduled upgrades or replacement of core systems for billing, Geographical Information System), Developer Information Management System and the IVR.

Compliance

Compliance expenditure includes infrastructure and IT capital expenditure associated with meeting regulatory obligations, including obligations from EPA, DSE, DHS and ESC.

Key compliance projects over the forthcoming regulatory period are shown in Table 4.9.

Table 4.9 Compliance Expenditure (\$2009m)

Compliance Project	2008–09 (\$m)	Forthcoming Regulatory Period				Total
		2009–10 (\$m)	2010–11 (\$m)	2011–12 (\$m)	2012–13 (\$m)	
West Werribee Dual Water Supply Scheme	0.3	10.6	27.1	34.3	-	72.3
Altona Recycled Water Project	0.8	25.5	32.9	-	-	59.2
Werribee Technology Precinct Recycled Water Project	0.3	1.7	1.6	-	-	3.6
Ongoing 1:5 Wet Weather Compliance Works	-	0.6	0.6	0.7	0.7	2.6
Private mains	0.3	0.3	0.6	0.6	0.6	2.4
Head Office Data Centre Redevelopment	1.0	1.0	0.2	-	-	2.2
SCADA	0.2	1.3	0.2	0.2	0.2	2.1
Laverton North Industrial Estate	0.1	-	0.9	0.9	-	1.9
ATP Access Road & Associated works	1.3	1.3	-	-	-	2.6
Disaster Recovery site	1.1					1.1
Five Mile Creek compliance	1.0					1.0
Taylor's Creek Detention Tank	1.0					1.0
Environmental Management System (EMIS)	0.2	0.2	0.2	0.2	0.2	1.0
Other	2.5	3.8	2.4	1.9	1.4	12.0
Total Compliance	10.1	46.3	66.7	38.8	3.1	165.0

Ongoing 1:5 Compliance Works

Works are required to bring the sewer network to a 1:5 year average recurrence interval standard, to comply with EPA obligations in the State Environment Protection Policy: Waters of Victoria. Works on the Five Mile Creek Catchment and Taylors Creek Catchment will be completed in 2008-09. There are on-going studies in other catchments which are expected to require works in future years to overcome hydraulically deficiencies. Forecast expenditure is approximately \$2.6m over the forthcoming regulatory period.

Private Mains

Private water services are those water assets in public lands owned and managed by individuals or groups to service their properties. These services were generally installed ahead of the subdivision of land for new suburbs. There is little reliable information on their number or location. The services are not maintained by CWW, which can be confusing for owners, particularly if ownership has changed, as well as confusing to other service authorities. Assuming responsibility and renewing sub-standard private mains could reduce leakage and improve service reliability.

During this water plan period, CWW will be identifying the extent of private water mains in its licence area, and it will negotiate to replace the poorer-performing private mains with CWW assets.

Altona Recycled Water Project

This scheme combines the ATP Golf Course Project and phase one of the Altona Industrial Project. These projects have been combined to deliver economies of scale and the combined project is now expected to be completed by December 2010. Capital expenditure over the forthcoming regulatory period is expected to be \$59.2m. The combined project is expected to deliver 2.5 GL per annum of potable water substitution (2.0 GL to Qenos and 0.5 GL to the golf courses). The Altona Industrial component of the project was listed in the CRSWS. CWW is also investigating the provision of recycled water to other industrial customers in the Altona area.

West Werribee Dual Water Supply Scheme

Stage 1 of the West Werribee Dual Water Supply project is to supply 1,750 ML per annum of Class A recycled water from Melbourne Water's Western Treatment Plant (WTP) to 9,250 residential customers at three new estates, to recreational reserves managed by Wyndham City Council and to other non-residential customers.

The project was included in CWW's previous Water Plan and approved by DTF in April 2005. Functional design for the project was completed by engineering consultants in 2006, who identified an opportunity to expand the scheme to capture new residential zones in the revised Wyndham Urban Growth Boundary. The expanded scheme will increase the recycled water uptake from 1,750 ML per annum to 3,100 ML per annum by servicing an additional 9,550 residential lots and additional public open space. An increase in pumping and storage capacity, increased size of the transfer main and an increase in recycled water treatment capacity are required to service the second stage.

The business case for this project was approved with the expectation of receiving bulk supply of low-salt, Class A recycled water from Melbourne Water. However, CWW and Melbourne Water could not agree on quality standards and risk elements, both significant cost drivers, from a salt reduction plant at WTP to service this project. Consequently, capital expenditure for the project includes a salt reduction plant to be built by CWW.

The salt reduction plant has been designed to allow future augmentation and will be constructed initially (by 2012) with 6ML per day installed capacity. This will service demand to approximately 2022. Augmentation of the system will be required at that time to service growth. Some assets which cannot be easily augmented, including recycled water pipelines, will be constructed by 2012 with sufficient capacity to meet demand up to full development (expected in approximately 2030). The capital cost of this project is estimated to be around \$73m, most of which will be spent over the forthcoming regulatory period (excluding augmentation costs at 2022 and beyond).

Werribee Technology Precinct

Stage 1 of the Werribee Technology Precinct recycled water scheme was commissioned in June 2007. It was designed to provide approximately 315 ML per annum of recycled water to 8 non-residential customers in the Werribee Technology Precinct area.

CWW is currently investigating the feasibility of Stage 2 of the project which will supply approximately 107 ML per annum of recycled water to several Wyndham City Council reserves and open space areas, schools and commercial properties. Supply to these customers is expected to commence in the 2010-11 financial year.

Growth

Infrastructure will be needed to service the expected growth of about 7,500 lots per annum (4,700 greenfield lots plus 2,800 brownfield lots per annum). Growth projects planned for the forthcoming regulatory period are shown in Table 4.10 and expenditure on growth infrastructure is forecast to be the same on average as the first regulatory period.

Table 4.10 Growth Projects (\$2009m)

Description	2008–09	Forthcoming Regulatory Period				Total
		2009–10	2010–11	2011–12	2012–13	
Derrimut Interceptor Sewer	11.4	12.5	8.0			31.9
Developer Reimbursements – Sewer	3.7	6.5	6.9	4.9	2.5	24.5
1150mm main Sayers road to Dohertys Rd.	0.3	3.2	6.4	3.2		13.1
Werribee West 750mm inlet/outlet main		3.3	6.0	3.0		12.3
Procurement of new meters	1.9	2.1	2.1	2.1	2.1	10.3
Developer Reimbursements – Water	2.0	2.0	2.0	1.7	1.6	9.3
Werribee West Low Level Reservoir	0.5	1.6	3.1	1.6		6.8
Werribee West – 600mm inlet/outlet main		1.4	2.4	1.2		5.0
Dunnings Road to Sneydes Road	2.5	1.1				3.6
Derrimut Industrial Supply Main			0.2	1.9	0.6	2.7
375mm Leakes Rd Main		0.2	1.7	0.6		2.5
Point Cook SPS 709 Diversion to WTS	2.1					2.1
Boardwalk Bld Distribution Main	1.9					1.9
Caroline Spring Booster Pump Station				0.1	1.8	1.9
600mm main Bourke St to Docklands	0.1	1.1	0.5			1.7
300mm main McIntyre Road				1.0	0.3	1.3
Lollipop Creek Branch Sewer Duplication			0.1		1.0	1.1
Kororoit Creek Main Sewer-lower	1.0					1.0
Other	5.0	3.1	2.1	2.4	2.7	15.3
Total	32.4	38.1	41.5	23.7	12.6	148.3

4.5 CWW's Top Ten Projects

Major Growth Projects

- Derrimut Interceptor Sewer. Required due to hydraulic capacity constraints in the current sewerage system which services the rapidly growing area of Caroline Springs. The project will deliver safe and reliable sewerage services to the area for the foreseeable future. The Derrimut Interceptor Sewer will be complete by the 2010-11 financial year.
- A 1150mm diameter water main from Sayers Road to Dohertys Road. This pipeline is the next stage in augmenting supplies to the rapidly growing Point Cook area. The pipeline will secure supplies and boost water pressures in the area. The works will be completed by the 2011-12 financial year.
- Werribee West – 750mm diameter inlet/outlet main, Werribee West low level reservoir, Werribee West – 600mm inlet main. Assets are required to maintain the water supply to West Werribee as the area grows. The works will deliver adequate water supplies for the next 15 to 20 years.
- Dunnings Road to Sneydes Road. Design works for a 600mm water main along Sneydes Rd are currently in progress. This main will supply forecast growth areas within Point Cook, specifically to the area south of Sneydes Road and west of Point Cook Road.

Compliance

- Altona Recycled Water Project. This committed project will deliver 2.5 GL per annum of potable water substitution when completed. The Altona Industrial component of the project was listed in the CRSWS.
- Werribee West Dual Water Supply. Stage one of the project will supply approximately 9,250 house lots and the expanded scheme will supply an additional 9,550 lots. The timing will be driven by the rate at which developers choose to prepare their land for sale.
- Werribee Technology Precinct. CWW is currently investigating the feasibility of Stage 2 of the project which will supply up to 107ML per annum of recycled water to five Wyndham City Council reserves and open space areas, five schools and four commercial properties. The expected date of completion of the Werribee Technology Precinct Stage 2 is the 2010-11 financial year.
- Ongoing 1:5 compliance - Works undertaken in the sewer compliance program are designed to bring CWW's sewer network to 1:5 year Average Recurrence Interval compliance in line with EPA requirements. There are currently two known hydraulically deficient catchments in the CWW region, namely Five Mile Creek catchment and Taylors Creek Catchment. Forecast expenditure is \$2.5m over the forthcoming regulatory period.

Table 4.11 Top Ten Projects (\$2009m)

Description	Driver	2008–09	Forthcoming Regulatory Period				Total
			2009–10	2010–11	2011–12	2012–13	
West Werribee Dual Water Supply Scheme	Compliance	0.3	10.6	27.1	34.3	-	72.3
Altona Recycled Water Project	Compliance	0.8	25.5	32.9	-	-	59.2
Derrimut Interceptor Sewer	Growth	11.4	12.5	8.0	-	-	31.9
1150 mm main Sayers Road to Dohertys Rd	Growth	0.3	3.2	6.4	3.2	-	13.1
Werribee West – 750 inlet/outlet main	Growth	-	3.3	6.0	3.0	-	12.3
Werribee West Low Level Reservoir	Growth	0.5	1.6	3.1	1.6	-	6.8
Werribee West – 600 inlet/outlet main	Growth	-	1.4	2.4	1.2	-	5.0
Dunnings Road to Sneydes Road	Growth	2.5	1.1	-	-	-	3.6
Werribee Technology Precinct Recycled Water Project	Compliance	0.3	1.7	1.6	-	-	3.6
Ongoing 1:5 Compliance works	Compliance	-	0.6	0.6	0.7	0.7	2.6
TOTAL		16.1	61.5	88.1	44.0	0.7	210.4

4.6 Financing Capital Investments

Updating the Regulatory Asset Base (RAB)

The Minister for Water determined that the opening value of CWW's Regulated Asset Base as at 1 July 2004 was \$734m, and that \$111m of MWC's regulatory asset value would be transferred to CWW (\$2009) at the beginning of 2009-10. Converted to 1 January 2009 real dollars, the opening value is \$842.57²⁴m. Table 4.12 adjusts the opening value, based on actual expenditures and contributions in the first regulatory period, to give the closing value of the regulated asset base.

Table 4.12 First Regulatory Period Closing RAB (\$2009m)

	2004-05	2005-06	2006-07	2007-08
<i>Opening Asset Base</i>	842.57	869.91	911.01	945.92
Gross Capital Expenditure	76.39	70.83	68.88	76.04
Government contributions	-	-	2.00	-
Customer contributions	28.21	5.59	4.84	7.32
Proceeds from disposals	-	0.10	-	0.10
Regulatory depreciation	20.84	24.04	27.13	29.71
<i>Closing Asset Base</i>	869.91	911.01	945.92	984.84

Rolling forward the RAB

The rolled-forward RAB for the period 1 July 2008 to 30 June 2013 is detailed below.

Table 4.13 Rolled Forward RAB 1 July 2008 to 30 June 2012 (\$2009m)

	2008-09	2009-10	2010-11	2011-12	2012-13
Opening Asset Base	1,095.84	1,164.35	1,274.48	1,402.00	1,477.90
Transferred Asset Base	111.00				
Gross Capital Expenditure	90.32	139.69	159.39	109.03	61.42
Government contributions	-	3.90	2.50	-	-
Customer contributions	9.82	10.45	10.45	10.45	10.45
Proceeds from disposals	-	-	-	-	-
Regulatory depreciation	11.99	15.21	18.92	22.69	25.45
<i>Closing Asset Base</i>	1,164.35	1,274.48	1,402.00	1,477.90	1,503.42

Customer Contributions

The customer contributions in Table 4.13 are based on a continuation of the current approved schedule of charges, indexed by CPI each year. The details are:

²⁴ Converted from \$734m using CPI of 141.3 at 2003-04 and 162.2 at 2008-09.

Table 4.14 Revenue Forecast for New Customer Contributions (\$2009m)

	Charge per lot	2008-09		2009-10 to 2012-13	
		Lots	Revenue (\$m)	Lots	Revenue (\$m pa)
Water					
<i>Non-dual pipe areas</i>					
<450m ² lots	550	7 312	4.21	6 962	3.83
450-1350m ² lots	1 100	600	0.55	1 000	1.10
>1350m ²	2 200	10	0.02	20	0.04
<i>Dual pipes areas</i>					
<450m ² lots	225	200	0.05	375	0.08
450-1350m ² lots	550		0.00		0.00
>1350m ²	1 100		0.00		0.00
TOTAL			4.82		5.06
Sewerage					
<450m ² lots	550	7 512	4.32	7 337	4.04
450-1350m ² lots	1 100	600	0.55	1 000	1.10
>1350m ²	2 200	10	0.02	20	0.04
TOTAL			4.89		5.18
Recycled Water					
<450m ² lots	550	200	0.11	375	0.21
450-1350m ² lots	1 100		0.00		0.00
>1350m ²	2 200		0.00		0.00
TOTAL			0.11		0.21
GRAND TOTAL		8 122	9.67	8 357	10.44

Regulatory Depreciation

CWW has used regulatory depreciation as a “balancing item” to ensure price increases do not exceed the Government target of no more than a doubling of price. The table below shows the difference between the depreciation adopted and that which would have been calculated using straight-line depreciation on an inflation indexed asset base:

Table 4.15 Regulatory Depreciation (\$ 2009m)

	2008-09	2009-10	2010-11	2011-12	2012-13
Straight-line	25.29	28.52	30.20	28.56	31.32
Adjusted for price outcome	11.99	15.21	18.92	22.69	25.45

Should other inputs change, such as the weighted average cost of capital, bulk charges or other operating costs, CWW would seek to reinstate the schedule of regulatory depreciation to that (or closer to that) obtained by the straight-line method.

Weighted Average Cost of Capital

A WACC of 5.8 per cent post-tax, real has been adopted, based on the ESC Final Determination for the regional water businesses in June 2008.

4.7 Taxation

CWW has used benchmark assumptions in relation to interest deductions and has applied National Tax Equivalent Regime principles in determining the tax depreciation schedule including the 30 per cent tax rate and 50 per cent franking credit value.

The final inputs are included in the *Revenue Requirement detail* worksheet of the ESC's information template.

5 Demand

This section details the individual demand forecasts for

- Residential water and sewerage
- Non-Residential water and sewerage
- Trade Waste
- Recycled water
- Lot growth / customer numbers

The forecasts are based on:

- Population from ABS 2006 Census. Growth Rate in Population and Household figures based on *Victoria in the Future 2004*.
- Average climatic conditions
- Adjustment for the likelihood of restrictions
- Central Region Sustainable Water Strategy (CRSWS) targets to achieve at least a 30 per cent reduction in per capita water use by 2015, non-residential savings and recycling (Actions 4.31, 4.32, 4.34 and 4.36).

5.1 Water Use

5.1.1 Residential Water Use

The Institute for Sustainable Futures developed a demand forecasting and options model for Melbourne based on demand end use components. The Melbourne End Use Model (MEUM) principally seeks to maximise the useful disaggregation of water demand. There are two main reasons for the disaggregation: to enhance the demand projection, and to model the likely impact of programs to conserve water.

Yarra Valley Water's (YVW) 2004 Residential End Use Measurement Survey, and South East Water's (SEW) Appliance Stock and Usage Patterns Survey in 2005, were utilised in the MEUM with information on stock ownership, sales penetration, frequency, flow rates, duration, and other behavioural patterns.

Lawn and garden demand is calibrated to actual demand in a base year, adjusted to normal weather conditions.²⁵ The base year used was 2005-06 (no restrictions), in which actual demand for CWW was 423 litres per person per day (lpcd) and normalised demand was 414 lpcd.

²⁵ CWW undertook a multivariate analysis of monthly water use against weather parameters, restrictions and price.

5.1.2 Non-Residential Water Use

While the MEUM contains a component for non-residential water demand, a more detailed stand-alone non-residential demand forecasting model was developed. For CWW, 47 per cent of total water use²⁶ is non-residential, which is a significantly higher proportion than other retailers, and thus justifies a more detailed analysis.

Non-Residential consumption was split into two sectors: the large user segment and small user segment.

Large User Segment (LUS)- using >10ML per annum

The methodology used to forecast demand for this segment was an extrapolation of historic consumption per customer recorded between 1997-98 and 2007-08.

Annual demand for the LUS was calculated by multiplying the average per customer forecast by the expected number of large user customers. The number of large user customers was deduced from the non-residential lot forecast, assuming the same proportion of large users to total non-residential users as the average for the period 1999-00 to 2007-08. The average per customer forecast is adjusted each year to reflect water savings in this segment.

Small User Segment (SUS)

The methodology used to forecast demand for this segment was an extrapolation of historic consumption per customer recorded between 1999-00 and 2007-08.

Annual demand for the SUS was calculated by multiplying the average per customer forecast by the expected number of small user customers. The number of small user customers was deduced from the non-residential lot forecast, assuming the same proportion of small users to total non-residential users as the average for the period 1999-00 to 2007-08. The average per customer forecast is adjusted each year to reflect water savings in this segment.

Total Non-Residential Demand

Total Non-Residential Demand was calculated as the sum of the two categories (LUS, SUS) minus the savings target (section 5.1.4). Current reductions in water use on Council open space areas, attributable to water restrictions, have been progressively reinstated consistent with the forecast of when restrictions will be eased.

5.1.3 Non-Revenue Water

In 2007-08, non-revenue water was equivalent to 8.4 per cent of the total bulk water purchased from Melbourne Water. This represents a significant reduction from the 24 per cent of bulk water in 1997-98. This reduction was a result of customer meter replacement programs, bulk billing meter improvements, improved response times to burst mains, and overall system management.

²⁶ CWW billing data, 2005-06

The value is low by international standards and CWW believes it can maintain it at 9.2 per cent of bulk purchases, this being the average of the last 3 years. To maintain the target of 9.2 per cent, CWW will continue its small main leak detection program, commence a new program for large main leak detection (recently trialled) and investigate pressure reduction programs.

5.1.4 Water Saving Targets

The Central Region Sustainable Water Strategy (CRSWS) provides a comprehensive plan for the sustainable use of water resources in the Central Region of Victoria (including Melbourne). The strategy contains actions to improve river health and address water shortfalls in the region over a 50-year planning horizon.

The CRSWS sets targets for water savings in Melbourne, and the four metropolitan water businesses have a joint plan²⁷ for achieving these savings. The plan contains seven programs for which the CWW shares are summarised in Table 5.1.

Table 5.1 Water Saving Targets 2009–10 to 2012–13

Obligation	Programs	Savings (ML)			
		2009-10	2010-11	2011-12	2012-13
<i>Achieve 30% savings in per capita total water consumption from 1990s level across Melbourne (Action 4.31, 4.32)</i>					
<i>CWW Proportion</i>					
30% by 2015	Behaviour Change and Garden ²⁸	10 000	10 000	10 000	10 000
	Showerhead	310	610	910	1 210
	Clothes washer	160	400	640	880
<i>Achieve savings of 8 GL in the Melbourne non-residential sector by 2015 (Action 4.34).</i>					
<i>CWW Proportion</i>					
0.72 GL in >10ML segment	Water Management Plans	Incorporated in target below			
5 GL potable substitution	Altona Industrial Recycling Project	0	1 050	2 100	2 100
<i>Achieve savings of an additional 5 GL in the Melbourne non-residential sector by 2015 (Action 4.34).</i>					
<i>CWW Proportion</i>					
1.7 GL in >10ML segment	Water Management Plans	300	540	780	1 020
<i>Achieve Potable Substitution of 6.2 GL by 2015 (Action 4.36 – excluding Altona industrial and 20% effluent recycling target)</i>					
<i>CWW Proportion</i>		370	660	1 160	1 350

²⁷ Joint Water Conservation Plan 2007-2015 (August 2007)

²⁸ Maintain the savings that were exhibited in 2006 when the CRSWS was prepared (page 91, CRSWS). For CWW, water use was at that time about 110GL compared to 120GL per annum typical consumption prior to behavioural change programs and restrictions.

5.1.5 Recycled Water Demand

Residential Segment – Dual pipe recycled water development will occur in the West Werribee area for the duration of the next regulatory period. Residential demand forecasts were derived with reference to the outdoor and toilet end-use activities from the MEUM and then adjusted for suburb specific behaviours. These suburbs tend to be greater than average water users, and they have a higher household occupancy at 3.17 persons per household. The recycled water demand is calculated based on toilet and garden watering use of 119kL per year per household in each year of the regulatory period, multiplied by the forecast annual growth in houses built and occupied in West Werribee.

Non-Residential Segment – Demand estimates are project-specific, and are shown in Table 5.2. They are based on a) historical records of metered water consumption of existing users; b) customers' own estimates for new users; or c) irrigation 'rules of thumb' on water use per hectare.

Table 5.2 Non-residential Recycled Water Demands (ML)

	First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Altona industrial	0	0	0	0	0	1 050	2 097	2 097
Werribee Technology Precinct*	0	0	94	250	265	300	375	375
Altona Golf Courses	0	0	0	0	0	250	495	495
MacKillop College	0	13	31	30	30	30	30	30
West Werribee (Open Space, Council, WRC)	0	0	0	0	0	0	175	368
Sunshine Golf Course	0	0	0	40	80	80	80	80
Total	0	13	125	320	375	1 710	3 252	3 445

* An additional 150 ML per annum is supplied from a stand-pipe to fill tanker-trucks that supply customers both inside and outside CWW's area.

5.1.6 Elasticity of Demand

The following elasticity of demand estimates were used²⁹ :

Table 5.3 Price Elasticity of Demand estimates

Tariff	Elasticity of Demand
Residential Usage Charge	
Tier 1	0.0
Tier 2	-0.1
Tier 3	-0.14
Non-Residential Usage Charge	- 0.185

²⁹ Water Services Association of Australia (March 2004) – Pricing for Demand Management; and ACIL Tasman (June 2006) – Pricing for Water Conservation in the non-residential urban sector.

Savings made as a result of price elasticity have been assumed to be transient, in that savings generated by a real price increase in a particular year will transition to zero after five years. This was assumed because permanent savings (through behaviour change or investment in technology) have been accounted-for in the CRSWS savings targets.

Furthermore, to avoid replicating savings arising from other means, price elasticity was applied only to non-restricted demand, and excluded those non-residential customers that are required by legislation to produce waterMAPS.

5.1.7 Impact of Restrictions

The outdoor end use within the MEUM is consistent with Permanent Water Saving Rules because they were in place in 2005-06, the year to which the EUM was calibrated. Therefore, adjustments for restrictions address only the four stages in the Drought Response Plan (DRP).

The probabilities of restrictions for the forthcoming regulatory period were supplied by MWC at the end of June 2008 using current storage levels, proposed augmentations and future streamflow sequences based on the historical record, adjusted to the average of the last 10 years to accommodate climate change. The most probable level of restriction in each year is 3a, 3a, 2, 1 and none (permanent water saving rules) for the period 2008-09 to 2012-13.

The following table represents the assumed savings at each Stage of restrictions:

Table 5.4 Water Savings From Restrictions

	Metropolitan Savings	Non-Residential Savings	Residential Savings
Stage 1	1%	0.0%	0.0%
Stage 2	3%	2.9%	3.5%
Stage 3	6%	7.3%	8.7%
Stage 4	10%	12.8%	15.2%

Note: These savings are not cumulative.

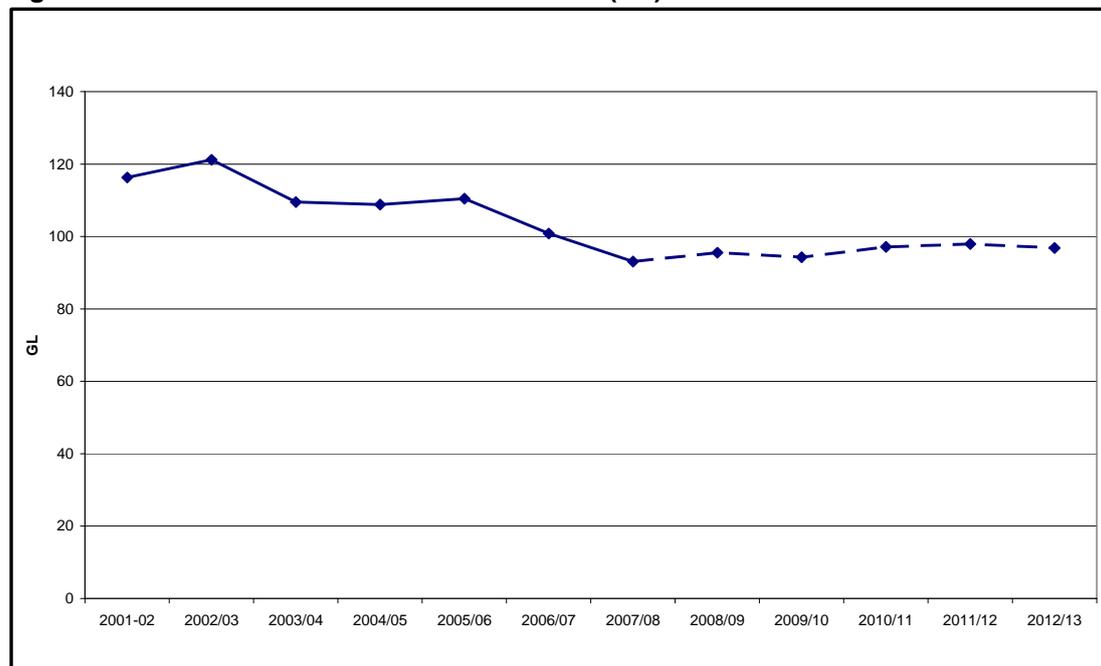
An analysis of CWW's database revealed that 27 per cent of non-residential demand is subject to restrictions. Of the 27 per cent of total demand to come from customers subject to restrictions, approximately 12.8 per cent of demand is expected to be restricted in stage 4. This estimate was arrived at by reviewing whether individual customers were subject to restrictions and comparing actual demand with their winter annualised demand.

5.1.8 Water Forecasts

The aggregate forecast water use for CWW is shown in Table 5.5 and Figure 5.1.

Table 5.5 Water Demand Forecasts (ML)

	First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
<i>Residential</i>								
Indoor	38 757	38 948	38 178	41 804	41 941	41 720	41 564	41 371
Outdoor	11 079	11 393	11 304	12 017	12 281	12 542	12 801	13 013
Potable	0	0	0	0	0	0	115	277
Substitution								
Restrictions	0	0	4 380	4 688	4 723	1 894	0	0
Elasticity	-	-	-	179	253	238	253	222
Residential	52 757	48 825	45 103	48 953	49 246	52 130	53 997	53 884
<i>Non Residential</i>								
> 10ML	-	-	-	27 970	26 440	25 096	23 916	22 881
<10ML	-	-	-	14 706	15 036	15 366	15 696	15 970
Potable								
Substitution (recycling)	0	13	125	320	375	1 710	3 252	3 445
Elasticity	-	-	-	743	1 018	801	718	607
Restrictions			3 348	3 110	3 018	1 140	0	0
Non-Residential	46 900	42 800	40 100	38 503	37 066	36 812	35 642	34 799
Non Revenue Water (ML)	10 800	9 200	7 860	8 046	7 941	8 183	8 247	8 134
Bulk Purchases	110 457	100 825	93 063	95 502	94 252	97 124	97 886	96 820

Figure 5.1 Forecast Bulk Water Purchases (GL)

5.2 Sewage Flows

CWW's total sewage flow is disaggregated into the following components for the purpose of forecasting bulk charges from Melbourne Water and revenue to be carried from customers:

- residential
- commercial (from customers without a trade waste agreement)
- trade waste (including greasy waste customers)
- rain dependent inflow (RDI)
- ground water infiltration (GWI)
- unallocated flow.

Load is disaggregated into the following components:

- biochemical oxygen demand (BOD)
- suspended solids (SS)
- Total dissolved solids (TDS)
- Total Nitrogen (TN).

All sewage processed at Altona Treatment Plant (ATP) originates from CWW customers. At the Western Treatment Plant (WTP) however, CWW's sewage load is mixed with sewage from YVW and SEW. A mass balance methodology is used to ensure that the sum of all sewage components from all retailers in the base year (2004-05) adds up to the volume and load observed by Melbourne Water at WTP.

Out of the total sewage collected by CWW, approximately 7 per cent is discharged to Altona Treatment Plant from the Altona and Point Cook catchments. The remainder is discharged to Western Treatment Plant.

5.2.1 Residential sewage flows

The residential volume for 2007-08 was calculated from the total of billed sewage volumes to all residential customers. Billed sewage volumes are an under-estimate of actual volumes (because the disposal charge factors are now out-of-date), and the difference between actual and billed is included in the 'unallocated' component (section 5.2.6).

The MEUM forecast of indoor water use (specifically the annual rate of charge) is used to forecast the growth in residential sewage flows from the base year, 2007-08. This ensures water conservation initiatives are accounted-for in sewage forecasts.

5.2.2 Commercial sewage volumes

Commercial sewage volumes are calculated for 2007-08 from billing data for non-residential properties, excluding all trade waste customers. The commercial properties are segmented into two categories; namely > 10ML and < 10ML of water use per annum.

The assumed discharge factor of 0.9 in billed volumes leads to a difference to actual volumes. This is accommodated in the 'unallocated' category.

Similar to the residential group, the forecast is derived by applying a growth rate to the base year, 2007-08. The growth rate is taken from the MEUM, but is discounted to reflect that some water conservation activities (eg. cooling towers) will not necessarily impact on sewage discharge.

5.2.3 Trade Waste volumes

Customers using water directly in, rather than incidental to, their business are deemed to be trade waste customers. Those trade waste customers discharging more than 4 kL per day or discharging pollutants at a concentration more than three times domestic sewage are generally classified as Category A. The rest are Category B.

Individual forecasts were derived for Category A and Category B, with each further categorized into > 10ML and < 10ML of water use per annum. The > 10ML groups (both Category A and Category B) forecasts were derived using the same methodology as that used for commercial sewage. The < 10ML groups' forecasts are increased in proportion to the growth in total water use, to reflect that this category will be influenced by new businesses being formed to service the growing population.

5.2.4 Rain Dependent Inflow (RDI)

RDI was deduced for each year by:

- Calculating the average weekly dry weather sewage volume at Melbourne Water billing meters during "dry weeks". A dry week is defined as a week in which rainfall does not exceed 5mm and which was preceded by a week with not more than 10mm of rainfall;
- Weeks coinciding with school holiday periods and the Christmas to January period were excluded because the flows in these periods are atypical;
- Subtract the calculated average weekly dry weather sewage volume (factored up to 52 weeks) from the total annual sewage volume to determine the total annual volume attributable to RDI.

The average RDI for the past thirteen years was 5.4 per cent of total sewage volumes. However the variation in RDI has been marked and has ranged from 1.8 per cent in 2002–03 to 12.5 per cent in 1995–96. The RDI was 3.2 per cent, 1.5 per cent and 3.6 per cent for 2004–06, 2006–07 and 2007–08 respectively.

RDI appears more closely related to rainfall distribution, which is random, rather than to total annual rainfall. CWW has adopted a forecast of 6 per cent, to be reflective of longer-term conditions.

5.2.5 Ground Water Infiltration (GWI)

GWI measurement is generally extremely difficult due to the generally relatively low flow rates of GWI occurring in the network and the significant percentage error associated with measurement of very low sewage flow rates. GWI can only be detected by observing flow rates in the sewer during early morning in catchments that are predominantly residential and/or which have minimal sewage discharge from customers from midnight to early morning, or by attempting to reconcile measured sewage flow rates with total water usage (which approximates sewage outflow during winter). However, the percentage error in undertaking such flow measurement is so significant that estimates of GWI so derived must be treated with caution.

In the ATP catchment however, where GWI is a relatively high percentage of total dry weather flow it is considered that a reasonably accurate estimate for GWI was obtained from detailed hydraulic modeling and catchment analysis completed in 2007. The estimate for GWI in the ATP catchment is 1.2 GL per annum.

On the basis of some very limited and approximate analysis undertaken in 2004, the total GWI into CWW's sewer network was estimated to be 3 GL per annum. By subtraction, the GWI entering the CWW portion of the WTP catchment is in the order of 1.8 GL per annum. For forecasts, these volumes are expressed as a percentage of total sewage flows, to ensure some growth as the network expands.

5.2.6 Un-allocated Volume

A mass balance methodology is used to ensure that the sum of all sewage components from all retail water companies adds up to the volume observed by Melbourne Water at WTP. This unallocated volume component is used to obtain the mass balance, and thus includes any underestimates in trade waste, commercial and residential flows.

Forecasts are based on the 2007-08 unallocated volume, increased each year in proportion to the growth in residential sewage volumes.

5.2.7 Sewage Forecasts

The aggregate forecast for sewage flows is shown in Table 5.6 and Figure 5.2. In both tables, the GWI, RDI and unallocated components are not billable to CWW customers, however they do form part of the volume for which CWW is billed by MWC.

Table 5.6 Sewage Volume Forecasts (ML) - WTP

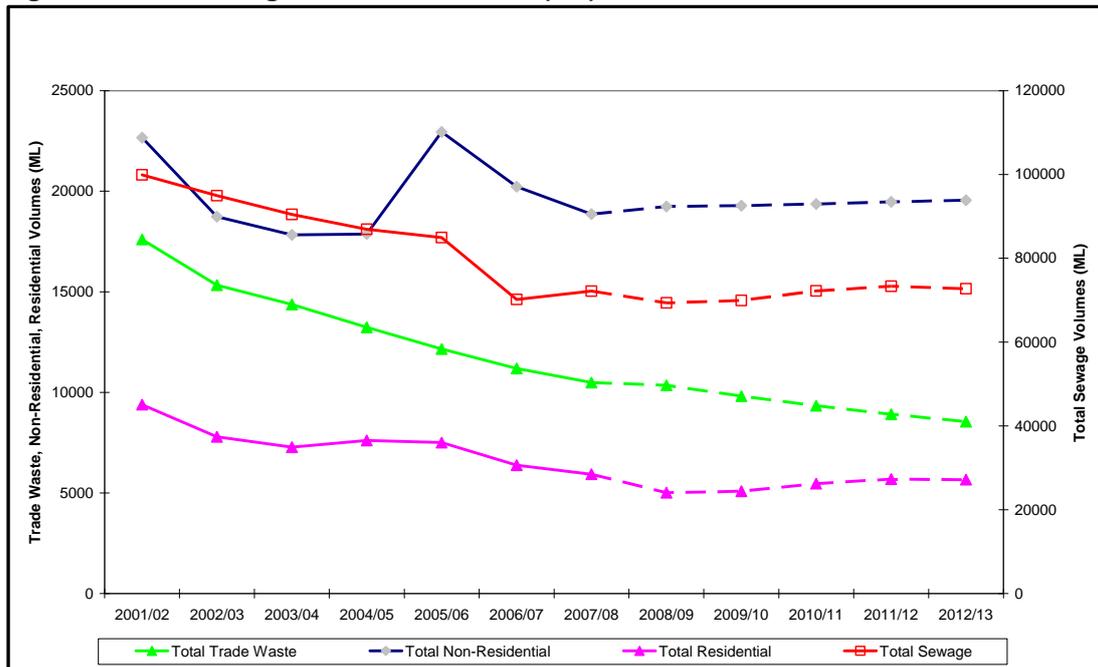
	History				First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Trade Waste - CAT A	17 590	15 313.66	14 354	13 220.93	12 139.08	11 173	10 476	10 341	9 797	9 320	8 902	8 535
Trade Waste - CAT B	3 039	1 747	3 039	3 053.81	4 123.48	4 486	3 682	4 446	4 502	4 561	4 624	4 675
Commercial	19 232	16 412	14 012	13 684	18 339	15 252 ³⁰	14 621 ³⁰	14 326	14 323	14 348	14 397	14 430
Residential	42 600	33 301	31 300	34 115	32 955	27 564	25 869	22 515	22 762	24 343	25 292	25 146
GWI	221	3 209	3 043	3 708	2 496	2 067	2 130	2 439	2 725	2 861	2 862	2 799
RDI	1 955	4 458	5 917	3 708	2 496	2 067	2 130	2 439	2 725	2 861	2 862	2 799
Total GWI + RDI	2 176	7 667	8 959	7 416	4 991	4 135	4 261	4 879	5 451	5 722	5 725	5 597
Unalloc	9 404	14 709	12 857	9 710	6 425	2 813	8 504	8 504	8 597	9 195	9 553	9 498
Total Sewage	94 040	89 151	84 522	81 200	78 972	65 422	67 413	65 011	65 433	67 489	68 492	67 880

³⁰ The historical allocation to the commercial category is incorrect in these two years. It is compensated-for through the unallocated category. Subsequent data has the dual impacts of both increasing severity of restrictions/dry weather and a re-calibration of a MWC bulk meter which resulted in a decrease of about 9GL in the volume of total sewage at Western Treatment Plant that is allocated to CWW. Forecasts reflect the latest meter calibration.

Table 5.7 Sewage Volume Forecasts (ML) - ATP

	History				First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Trade Waste – CAT A	15	15	14	18	18	14	11	14	15	15	15	15
Trade Waste - CAT B	27	14	15	30	30	30	31	39	40	41	42	42
Commercial	364	564	761	1 106	459	458	528	429	422	416	411	407
Residential	2 477	4 113	3 637	2 425	3 045	3 045	2 611	2 332	2 314	2 389	2 425	2 377
GWl	2 832	208	214	1 789	2 206	1 047	1 432	2 206	2 206	2 206	2 206	2 206
RDI	123	289	417	596	188	150	151	134	133	138	140	137
Total GWl + RDI	2 955	497	631	2 385	2 394	1 196	1 582	2 340	2 339	2 344	2 346	2 343
Unalloc	0	580	892	-261	16	0	0	0	0	0	0	0
Total Sewage	5 838	5 783	5 951	5 703	5 962	4 743	4 764	5 155	5 130	5 205	5 239	5 186

Figure 5.2 Sewage Volume Forecasts (ML)



Note: The inconsistency in non-residential data for 2006-07 and 2007-08 is explained in the note attached to Table 5.6.

5.3 Trade Waste Load Forecasts

Forecasts are produced for each of the current and proposed chargeable parameters, namely:

- biological oxygen demand (BOD)
- suspended solids (SS)
- total dissolved solids (TDS)
- total nitrogen (TN)

An exponential line of best fit to historical data on concentrations of each parameter is used for forecasting. The load forecasts are obtained by multiplying the concentration forecasts by the volume forecasts (section 5.2).

Forecasts are made separately for Category A and B trade waste customers. Cleaner production initiatives in terms of pollutant load reduction are applied to the Total Dissolved Solids forecast for Category A customers only.

Table 5.8 shows the pollutant load forecasts.

Table 5.8 Pollutant Load Forecasts (Tonnes)

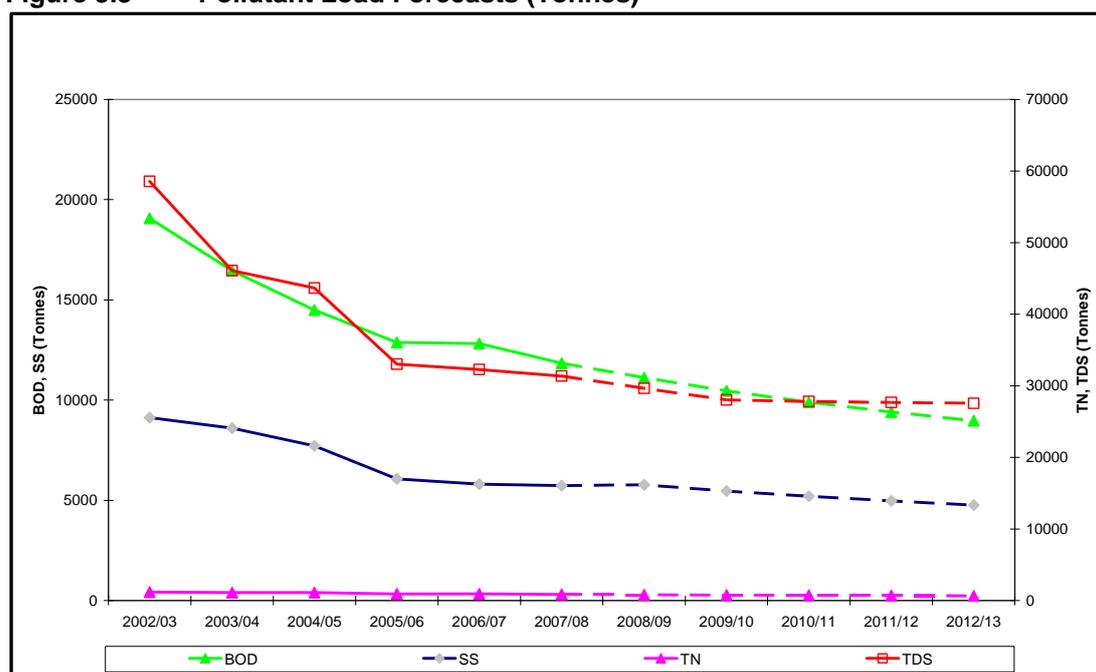
	History				First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Western Treatment Plant												
BOD [#]	27 295	33 672	31 638	32 278	32 238	32 069	30 352	29 592	29 118	29 102	29 027	28 749
SS [#]	30 707	27 689	26 455	30 199	29 337	28 332	28 100	28 318	28 327	28 781	29 094	29 118
TKN [#]	ND	ND	ND	4 929	4 916	4 741	4 744	4 701	4 712	4 807	4 854	4 914
TN	5 588	5 018	4 622	5 005	4 990	4 853	4 780	4 742	4 764	4 839	4 903	4 939
Inorganic TDS [#]	ND	ND	ND	67 099	58 235	57 548	56 853	55 436	55 144	55 545	55 736	55 797
TDS	ND	96 191	83 580	95 148	84 843	82 287	80 511	78 061	77 736	79 536	80 575	80 546
Altona Treatment Plant												
BOD	823	1 188	1 134	1 294	1 387	1 313	1 378	1 371	1 371	1 374	1 377	1 378
SS	779	1 384	1 387	2 552	2 526	2 523	2 629	2 608	2 610	2 615	2 622	2 624
TKN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TN	175	304	306	284	294	291	321	312	313	314	316	317
Inorganic TDS	ND	ND	ND	19 077	20 041	17 400	18 427	20 152	20 155	20 161	20 169	20 172
TDS	0	2 713	2 883	27 252	27 366	25 239	26 501	28 570	28 575	28 583	28 593	28 597
Chargeable Trade Waste*												
BOD	9 439	19 075	16 454	14 493	12 882	12 828	11 837	11 120	10 466	9 898	9 404	8 972
SS	9 233	9 128	8 607	7 717	6 069	5 808	5 740	5 773	5 468	5 201	4 968	4 762
TN	1 370	1 198	1 100	1 119	901	931	849	808	766	729	696	667
TDS	ND	58 551	46 ,096	43 668	33 023	32 274	31 372	29 649	28 042	27 810	27 679	27 560

MWC bulk charge based on these parameters

* loads for those trade waste customers (CAT A) that pay based on loads as well as volumes.

ND not determined

Figure 5.3 Pollutant Load Forecasts (Tonnes)



5.4 Customer Numbers

Trade Waste Customers

In addition to the volume and load charges levied on Trade Waste customers, the costs associated with establishing trade waste agreements and monitoring subsequent compliance are recovered through trade waste agreement and application fees. The quantum of the charge depends upon the particular 'risk ranking'³¹ of a customer, because this drives the complexity of the initial investigations and the frequency of compliance inspections.

The forecast number of applications and the number of customers expected in each risk ranking are shown in Table 5.9. The forecast used a trend line of best fit to historic data for each risk rank category.

Table 5.9 Trade Waste Application and Agreement Fee Customer Forecasts

	First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
	Trade Waste Application							
Risk Rank 1	8	8	8	8	8	8	8	8
Risk Rank 2	5	5	5	5	5	5	5	5
Risk Rank 3	8	8	8	8	8	8	8	8
Risk Rank 4	44	44	44	44	44	44	44	44
Risk Rank 5	575	570	565	561	558	555	553	526
	Trade Waste Agreement							
Risk Rank 1	25	24	23	23	22	22	21	21
Risk Rank 2	18	21	21	21	21	22	22	22
Risk Rank 3	33	39	39	40	40	40	40	40
Risk Rank 4	307	306	308	309	310	311	312	312
Risk Rank 5	5 275	5 262	5 305	5 344	5 378	5 410	5 439	5 466

³¹ The risk rank assigned to a customer (1 = highest risk, 5 = lowest risk) is calculated based on location, volume, compliance history, business activity, discharged substances and the manufacturing sector. See Essential Services Commission, 2008 Water Price Review, City West Water Determination, June 2008, section 3.8.

Food waste charges apply to the discharge of food waste in circumstances which do not attract trade waste charges. Food waste charges are generally associated with the preparation of meals other than on residential premises. Numbers (Table 5.10) have been held constant because all new customers are categorised as trade waste customers.

Table 5.10 Food Waste Customers

Category ³²	Forecast units per annum
Hospitals and Other Institutions (per bed)	3 812
Other Customers (per year, per unit)	
Category A	10
Category B	2
Category C	8
Potato Peeler Units Without Peel Interceptor	
Category D	0
Category E	1
Category F	0

Residential Lot Forecasts

Forecasts are developed for each water supply zone and sewerage catchment. The total lot forecast for 2008-09 is 7,500, which is based on offers that have already been made to developers. This number has been assumed constant for each year in the forthcoming regulatory period, and it is expected to reduce in the period following as some catchments reach full development.

While the total lot forecast of 7,500 per annum will drive revenues from New Customer Contributions, it is only outer region lots that will drive the value of gifted reticulation assets. The lot forecast for the outer region is 4,200.

Non-Residential Lot Forecasts

Non-residential customer growth forecasts are based on the historic percentage of non-residential to residential customers. It is assumed that the growth rates are consistent between the two segments. Industry closures are ignored because they are concentrated amongst the large users, who form a minor part of total non-residential customer numbers.

Non-residential lot forecasts are 11.5 per cent of residential lot growth.

³² The food waste category assigned to a customer depends on the power rating of the machinery. See Essential Services Commission, 2008 Water Price Review, City West Water Determination, June 2008, section 3.9.

Table 5.11 Residential Water Customer Numbers

	History				First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Lot Growth	9 104	9 252	8 851	8 965	7 341	6 953	11 283	7 500	7 500	7 500	7 500	7 500
Customer Numbers	238 247	247 499	256 350	265 315	272 656	279 609	290 892	298 392	305 892	313 392	320 892	328 392

Table 5.12 Residential Sewerage Customer Numbers

	History				First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Lot Growth	9 134	9 256	8 721	8 996	7 374	7 028	11 288	7,500	7,500	7,500	7,500	7,500
Customer Numbers	237 076	246 332	255 053	264 049	271 423	278 451	289 739	297 239	304 739	312 239	319 739	327 239

Table 5.13 Non-Residential Water Customer Numbers

	History				First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Lot Growth	923	941	857	626	205	728	1 157	1 528	779	779	779	779
Customer Numbers	25 360	26 301	27 158	27 784	27 579	28 307	29 464	30 992	31 771	32 550	33 329	34 108

Table 5.14 Non-Residential Sewerage Customer Numbers

	History				First Regulatory Period			2008-09	Forthcoming Regulatory Period			
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08		2009-10	2010-11	2011-12	2012-13
Lot Growth	868	924	796	557	186	740	1 146	1 528	779	779	779	779
Customer Numbers	24 064	24 988	25 784	26 341	26 155	26 895	28 041	29 569	30 348	31 127	31 906	32 685

6 Prices

This section of the Water Plan outlines the prices and tariff structures that City West Water (CWW) proposes to implement over the forthcoming regulatory period.

6.1 Tariffs Structures

The purpose of tariffs is to recover efficient underlying costs and provide signals about water conservation and cleaner production. Tariffs should:

- reflect the costs of providing services to customers (WIRO section 14(a)(vi))
- promote the sustainable use of Victoria's water resources (WIRO section 14(a)(viii))
- enable customers to readily understand and hence respond to the pricing signals (WIRO section 14(a)(ix))
- have regard to the interests of low income and vulnerable customers (WIRO section 14(a)(vii) and
- be administratively simple (section 4C of the Water Industry Act)

While CWW is not proposing any changes to tariff structures for 2009-10, it is recognised that tariff changes might be desirable before the end of the forthcoming regulatory period. Any proposals would be based on thorough modelling and customer consultation, including consideration of transition periods. Topics for investigation and consultation could include:

- Should service charges be applied to each titled property, or should they somehow vary between properties to reflect the "reserved" capacity in the pipe network?
- Should water usage tariffs better distinguish between essential use and discretionary use?
- Should sewerage volumetric prices be reduced in order to better reflect long run marginal costs of treatment? Should the sewerage volumetric tariff be simplified?
- Should recycled water prices be pegged to the price of potable water, and at what discount?
- Should the current trade waste parameters better reflect long run marginal costs of treatment? Who pays for the reduction of salt in the treated sewage to allow it to be recycled?

6.2 Price Path

The revenue required by CWW to meet its obligations and service standards is \$293m in 2008–09, and is expected to increase to \$463m in 2012–13. This requires an average annual price increase between 2009–10 and 2012–13 of CPI + 14.1 per cent per annum. This meets the Government's target of no more than doubling over a 5 year period.

Instead of a constant increase each year of 14.1 per cent real, CWW proposes the price path in Table 6.1 on the basis that it better reflects the distribution of revenue required each year, it reduces the possibility of requiring a price reduction in the first year of the next regulatory period, and it represents the same total revenue in net present value terms.

Table 6.1 Proposed price path – annual real increases

2008-09	2009-10	2010-2011	2011-12	2012-13
14.8%	18%	12%	12%	10%

6.3 Tariff Proposals

6.3.1 Customer Impacts

It is proposed that all tariffs, except for new customer contributions, will be increased by the same amount (Table 6.1). Customer impacts are therefore uniform and consistent with the Government target of no more than doubling over a 5 year period.

The change in average household bill assuming annual water use of 165 kL is shown in Table 6.2.

Table 6.2 Change in Average Household Bill - Water and Sewerage (\$2009)

2007-08	2012-13	Change
\$492	\$920	87%

165kL pa water use

6.3.2 New Customer Contributions

When developers connect their subdivision to the existing water and sewerage system they typically contribute to the costs of supply by installing the local reticulation assets to the standard specified by the water business.

Clause 7.4(c) of CWW's Statement of Obligations requires it to adopt the ESC's decision on developer charges contained in the 2008 Water Price Review for regional and rural water businesses.

In summary, developer charges are shown in Tables 6.3 and 6.4, and will be indexed by CPI each year.

Table 6.3 Typical standard Greenfield urban development or subdivision

Lot size	Water NCC	Sewer NCC	Total NCC
Less than 450 sqm	\$550	\$550	\$1 100
450 – 1350 sqm	\$1 100	\$1 100	\$2 200
Above 1350 sqm	\$2 200	\$2 200	\$4 400

Table 6.4 Typical dual pipe development or subdivision

Lot size	Water NCC**	Recycled Water NCC	Sewer NCC	Total NCC
Less than 450 sqm	\$275	\$550	\$550	\$1 375
450 – 1350 sqm	\$550	\$1 100	\$1 100	\$2 750
Above 1350 sqm	\$1 100	\$2 200	\$2 200	\$5 500

** 50 per cent reduction to standard scheduled charge.

Developers will continue to be responsible for providing reticulated assets and non-shared assets to be installed specifically to service their property or development. Reticulated assets include up to 150 mm diameter water mains and recycled water mains, and up to 225 mm diameter sewer mains (and associated infrastructure). In cases where it can be established that the developer is required to provide reticulation assets that exceed the requirements of their development in a material respect, the developer will only be required to contribute to the costs of the reticulation assets an amount that reflects the requirements of their development. The balance of the costs of the reticulation assets in such a case will be recovered via contributions from subsequent developers connecting to the reticulation assets in question.

Brought forward financing costs will apply instead of the scheduled charges where shared network assets are being constructed at a time when they do not form part of a logical extension to the networks. A contribution equivalent to 40 per cent of the as-constructed cost of the shared assets will apply in cases where the works are not in the medium-term planning period. A contribution equivalent to 70 per cent will apply in cases where the works are not in the long term planning period.

CWW may apply other non-scheduled charges, to which the developer has a right of appeal to the ESC.

6.3.3 Recycled Water Charges

CWW will adopt the pricing principles determined by the ESC³³ namely:

- have regard to the price of any substitutes and customers' willingness to pay
- cover the full cost of providing the service (with the exception of services related to specified obligations or maintaining balance of supply and demand)
- include a variable component.

To meet these principles, CWW proposes to maintain volumetric prices for recycled water that are linked, and discounted to the price of potable water. For residential customers this is achieved by charging all recycled water at the Tier 1 price for potable water, and for non-residential customers, 75 per cent of the non-residential price for potable water. This applies to all projects that are designed to meet Government recycling obligations and targets for potable water reduction via substitution.

However, for both discretionary projects and components of obligatory projects in which extra costs are necessary to meet customers' higher expectations, prices will reflect cost recovery and will be communicated to customers in advance.

6.3.4 Miscellaneous Charges

CWW has calculated its charges for all miscellaneous services based on the principle of direct costs plus a fair allocation of overheads.

³³Water Price Review Final Decision June 2008, page 118.

Direct costs are third party costs, labour (including on-costs) for staff directly involved, materials and transport, plus an overhead applied to the labour component only.

The calculation of the labour overhead rate for tasks performed by CWW personnel is shown in Table 6.5.

Table 6.5 Corporate Overhead Rate 2008-09

(a) Total costs of 'corporate' business units, excluding labour	\$20.16m
(b) Total labour costs – whole business	\$20.30m
Overhead rate [(a) x 100 ÷ (b)]	99.3%

In the First Water Plan in 2004, the CWW corporate overhead rate was calculated to be 84 per cent.

For tasks performed by CWW's maintenance services contractor, the job costs recorded do not include remuneration for support costs and profit margin. The profit margin comprises a fixed component as well as additional remuneration associated to a KPI at-risk component and a gain share at-risk component. A share of this additional remuneration is recovered by applying an overhead rate of 51 per cent³⁴ of direct labour for the contractor, and 38 per cent³⁵ of direct labour if sub-contracted.

Activity levels for each service were largely based on activity levels in recent years, modified for any known changes in development activity.

Table 6.6 shows the core miscellaneous services which are expected to generate about 80 per cent of all miscellaneous revenue, however all other miscellaneous charges will be set according to this same principle, and they are all explained in a Pricing Handbook on CWW's website.

Consistent with price movements approved by the ESC in 2008, it is proposed that no miscellaneous price will increase by more than the price path listed in Table 6.1, and that to maintain the same total revenue from miscellaneous charges, the shortfall on any constrained price will be added to the prices for other miscellaneous activities. The adjustments are shown in Table 6.6: the price of complex plumbing applications was the only one capped, and the associated revenue shortfall was recovered by increasing prices for electronic information statements, 20mm meters and standard plumbing applications. It is proposed this same methodology will be applied each year until all prices reach the level calculated by the application of the pricing principle of direct costs plus a fair share of overheads.

For the purpose of forecasting the revenue that will be generated from miscellaneous charges, total revenue has been increased by 1.1 per cent per annum, which reflects the expected real increase in labour costs, a primary cost driver of miscellaneous services. In total, CWW expects to receive \$8.4m in revenue from miscellaneous charges in 2009-10.

³⁴ Support costs are neither totally fixed nor totally variable, so the calculated overhead rate of 102 per cent was reduced to the mid-point of 51 per cent.

³⁵ Rate calculated to produce the same job-cost irrespective of the job being undertaken by CWW's contractor or a sub-contractor.

Table 6.6 Core Miscellaneous Charges 2009-10³⁶

Charge	Price 1 July 2008	Price 1 July 2009		2009-10 Forecast		Description
		Calculated	Proposed	Activities (number)	Revenue (\$'000)	
Information Statement – electronic	\$19.80	\$13.76	\$14.00	19 500	\$273.0	A statement showing charges outstanding for a customer / property and any CWW or MWC encumbrances on the property – accessed via CWW website
Information Statement – standard	\$29.05	\$22.04	\$22.00	8 100	\$178.2	A statement showing charges outstanding for a customer / property and any CWW or MWC encumbrances on the property – requested and supplied by mail.
Offer fees – Works Offers >10 lots	\$1 681.00	\$1 822.05	\$1 822.00	141	\$256.9	Processing, feasibility advice and connection details for proposed works by developers.
Acceptance fees – Works Offers >10 lots	\$3 066.15	\$3 474.14	\$3 474.00	141	\$489.8	Processing, feasibility advice, auditing, commissioning and acceptance testing of works by developers
New Meter – 20mm	\$138.85	\$131.98	\$132.00	9 000	\$1 188.0	Installation of a new meter (20mm) at a property, inclusive of delivery, installation, materials and processing.
Meter Assembly – 20mm	\$180.60	\$175.00	\$175.00	9 000	\$1 575.0	Supply and installation of materials for a meter assembly on a 'dry' tapping.
New Meter – 50mm	\$1 970.95	\$2 159.28	\$2 159.00	126	\$272.0	Installation of a new meter (50mm) at a property, inclusive of delivery, installation, materials and processing.
Tappings/Tee Insertions 20mm – all main sizes	Actual cost ³⁷	Actual cost ³⁷	Actual cost ³⁷	1 260	\$493.3	A tapping or tee insertion is the connection to the water main itself. A "tapping" is associated to small service connections.
Plumbing Application – standard	\$85.95	\$99.60	\$104.00	9 350	\$972.4	Application to connect new plumbing work to a CWW water main or sewer – standard situations.
Plumbing Application – complex	\$215.60	\$296.81	\$261.00	1 300	\$339.3	Application to connect new plumbing work to a CWW water main or sewer – complex situations.
Chargeable Works	Actual cost ³⁷	Actual cost ³⁷	Actual cost ³⁷		\$857.00	Works and services performed at the request of or on behalf of Councils, other utilities and customers.
				Total	\$6 894.9	

³⁶ All prices are exclusive of GST³⁷ Costs paid to a third party plus an overhead applied to the labour component of 38 per cent for subcontractors and 51 per cent for CWW's contractor

6.4 Adjusting Prices

CWW proposes that the ESC approve a hybrid price cap – tariff basket approach consistent with its determination in June 2008 for the regional urban water authorities.

In particular, CWW intends to apply during the period to adjust prices or tariff structures at the time of the annual price review. Adjustments will be to address issues like those listed in section 6.1, and will follow customer consultation and attention to customer impacts.

Given the uncertainty associated with demand forecasts made for the purpose of this price determination, CWW supports the ESC's approach adopted for the regional water businesses, that allows significant variations between actual and forecast demands to be assessed when annual price adjustments occur.

7 Financial Summary

This section summarises City West Water's (CWW) expected financial results (in nominal dollars) based on the demand forecasts and prices listed in the earlier chapters. The consumer price index is assumed to increase by 2.9 per cent per year over the regulatory period.

The return on assets is forecast to increase from 6.6 per cent in 2007-08 to around 9 per cent over the regulatory period. Return on equity is also forecast to increase marginally, from 6 per cent in 2007-08 to around 11 per cent by 2012-13.

Gearing is forecast to move from 47 per cent in 2007-08 to approximately 57 per cent by 2012-13, while cash interest cover is forecast to fall from 3 to 2.8 times by 2012-13. Total tax and dividend payable is forecast to increase from approximately \$27m in 2007-08 to \$46m by the end of the regulatory period.

Table 7.1 Summary of Financial Results (\$nominal)

	2006-07 Jun Actual	2007-08 Jun Actual	2008-09 Jun Forecast	2009-10 Jun Forecast	2010-11 Jun Forecast	2011-12 Jun Forecast	2012-13 Jun Forecast
Profitability							
Operating Revenue (\$'m)	212.5	215.8	261.8	313.6	374.2	442.2	508.7
Operating Costs (\$'m)	67.0	72.9	81.5	86.6	92.5	99.7	105.9
Finance Charges (\$'m)	19.1	21.5	26.6	33.0	40.6	46.1	48.9
Profit before Tax (\$'m)	46.1	42.2	44.6	58.8	65.5	70.9	71.0
Tax and Dividends (\$'m) – 65% of PBT	29.9	27.4	29.0	38.2	42.6	46.1	46.2
Net Surplus (\$'m) – profit after tax and dividend	16.1	14.8	15.6	20.6	22.9	24.8	24.9
Balance Sheet							
Capital Expenditure (\$'m)	58.0	65.4	79.4	129.0	155.1	107.4	57.1
New Borrowings (\$'m)	50.0	22.5	65.6	101.5	97.7	49.9	17.4
Total borrowings (\$'m)	318.5	341.0	327.2	428.7	526.4	576.2	593.6
Total Assets (\$'m)	934.0	994.3	982.8	1 108.4	1 230.6	1 306.7	1 348.9
Total Liabilities (\$'m) ³⁸	548.2	606.9	592.9	705.5	812.4	871.2	896.2
Net Assets / Equity (\$'m) ³⁸	385.7	387.4	389.9	402.9	418.2	435.5	452.8
Financial Ratios							
Return on assets (%) – (EBIT/Ave Assets)	7.2%	6.6%	7.2%	8.8%	9.1%	9.2%	9.0%
Return on equity (%) – (PAIT/Av Equity)	7.0%	6.0%	6.4%	10.2%	11.0%	11.5%	11.1%
Gearing (Debt/Debt + Equity) (%)	45.2%	46.8%	45.6%	51.6%	55.7%	57.0%	56.7%
Interest cover (Times) – Profit	3.4	2.9	2.7	2.8	2.6	2.5	2.5
Interest cover (Times) – Cash	3.4	3.0	2.9	3.0	2.9	2.8	2.8

³⁸ Includes provision for final dividend.