

Independent Pricing and Regulatory Tribunal (IPART)



Review of Sydney Water's
Capital and Operating Expenditure and
Asset Management Plan

Final Report

February 2008

Halcrow Pacific Pty Ltd

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Contents Amendment Record

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	D	Final Draft Report incorporating Tribunal comments	03/12/07	DF	JOS	
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Executive Summary

Background

Halcrow was engaged by the Independent Pricing and Regulatory Tribunal (IPART) to undertake an independent review of Sydney Water's capital and operating expenditure and asset management plan in order to set prices for regulated services for the period from 1 July 2008 to 30 June 2012 ("the price path period").

The primary objectives of this review were to assess, for Sydney Water's regulated water, sewerage and drainage businesses, the following:

- the efficiency of Sydney Water's operating expenditure for the period from 1 July 2005 to 30 June 2008;
- the efficiency of Sydney Water's proposed operating expenditure for the period from 1 July 2008 to 30 June 2012;
- the prudence of Sydney Water's capital expenditure for the period from 1 July 2005 to 30 June 2008; and
- the efficiency of Sydney Water's proposed capital expenditure for the period from 1 July 2008 to 30 June 2012.

Our Approach

Our overall approach for reviewing Sydney Water's proposed capital and operating expenditure involved focusing on the processes and systems used by Sydney Water to develop the programs for both capital and operating expenditure. A detailed investigation of each project or program of works included in the capital or operating expenditure is not feasible, in terms of time and budget, for this review.

We have focussed on the processes that lead up to a project or program of works being included in the capital and operating expenditure. If we can establish confidence that the processes used are robust, detailed and appropriately take into account the specific issues identified in the scope of services and that the processes are in place and implemented, then we can be reasonably confident of the efficiency of the capital and operating expenditure programs developed.

We have separately identified a number of specific projects for comment including the Sydney Desalination Plant and the water recycling plants nominated under the Section 16A determination from the Minister, specifically the Western Sydney Recycled Water Initiative Replace Flows project, the Camelia Recycled Water Plant and the Busby's Bore plant.

In regards to Sydney Water's historical capital and operating expenditure, we have reviewed Sydney Water's various submissions to IPART and supporting documents provided during our detailed interviews with Sydney Water. We identified overruns and underspends on projects or programs of work and the reasons for this variances where this information was made available by Sydney Water. We then reviewed the impact of these variances in regards to overall performance against the expenditure targets set in the 2005 IPART determination.

Our approach was hampered by the lack of consistency in reporting historical and proposed expenditure including:

- lack of consistency in the format in which expenditure was reported, for example, reporting by cost driver, core and consolidated business activities, function, product, project and program across the range of supporting documentation;
- variances in reported expenditure for the same activities/projects/programs between the different supporting documents provided by Sydney Water; and
- a lack of consistency in reporting actual and proposed expenditure, for example, expenditure was reported in 2007/2008 nominal, 2008/2009 nominal, 2007/2008 real and 2008/2009 real terms throughout the supporting documents provided with variances even within the same document.

We have reported all expenditure values in 2007/2008 real terms as directed by IPART and have adjusted Sydney Water's reported expenditure using the inflation based indexes provided by Sydney Water in their Annual Information Return submitted to IPART.

Historical Expenditure – Operating

Sydney Water has performed reasonably well in meeting the operating expenditure targets set in the 2005 IPART determination. Over the period from 2005/06 to 2007/08, Sydney Water's total operating expenditure was \$2,590.8 million compared to the 2005 IPART Determination target of \$2,383.7 million, representing a variance of \$207 million or about 8.7% above the target.

The variation from the IPART determination expenditure was predominantly a result of a significant overspend of over \$406 million for water offset by a \$211 million underspend for wastewater compared to the IPART determination values. We were generally unable to determine, with the information provided, whether the variances were a result of slippages on specific projects or programs due to the method used by Sydney Water to report their historical operating expenditure.

We attempted to compare Sydney Water's performance with the performance of other water agencies however we found that such performance information is generally not available publicly. We were able to compare Sydney Water's performance to two Victorian water agencies, however, and we found that these agencies performed to within 3-12 % of their targets. Sydney Water's performance is therefore in the range of performance achieved by other water agencies.

While we found that there were a number of problems with the reporting of historical expenditure our review of the historical operating expenditure over the period from 2005/2006 to 2007/2008 led us to conclude that Sydney Water's historical operating expenditure appears to be appropriate and could be used as the basis for the analysis of Sydney Water's proposed operating expenditure.

Historical Expenditure – Capital

Sydney Water reported that they were on track to achieving the capital expenditure targets set out in the 2005 IPART determination. Over the period from 2005/06 to 2007/08, Sydney Water's reported actual capital expenditure (excluding costs associated with the desalination plant and capitalised borrowing costs) was \$1,774 million compared to the expenditure target set for the same period of \$1,891 million. This represents a variance from the expenditure targets of \$117 million or 6.2%.

Key variances in the capital program were reported by product (excluding desalination plant costs):

- Water - \$53.7 million under target (9%) – resulting from higher levels of water main renewals and expenditure on renewable energy infrastructure offset by significantly lower expenditure on growth infrastructure (which in turn was a result of significantly lower take up in identified development areas), and lower levels of critical water main renewals (in part due to better condition assessment data which led to a number of critical water mains being reclassified).
- Wastewater - \$28.3 million over target (3%) – resulting from accelerated delivery of the South Western Sydney Sewerage Scheme (due to procurement efficiencies) and Sewer Main Renewals programs and higher than expected construction cost estimates for a number of capital project offset by a

reduced level of investment in the Wet Weather Flow Abatement Program (deferred investment due to longer approvals and consultation processes and slower start up of the alliance model) and delays on the North Head PARR project.

- Recycled water - \$4.9 million under target (6%) – resulting from additional works resulting from the Metropolitan Water Plan offset by deferred expenditure due to scope redefinition at Hoxton Park and reduced expenditure in the North West and South West development sectors due to reduced growth rates.
- Stormwater - \$5.9 million under target (15%) – resulting from deferred expenditure due to delays in projects.

Sydney Water has reported on the output measures that were set in the 2005 IPART determination to track the delivery of Sydney Water's capital program over the period from 2005/2006 to 2008/2009. Sydney Water reports that approximately 63% of the target measures were met or exceeded and 37% of the targets were not met. Key variances are summarised in the following points below.

- Renewals of critical water mains – under target by 31% (28.7km of 41km) – due to increased time taken for condition assessments leading to better data on assets and the ability to remove some lengths of mains from the critical condition list.
- Renewals of distribution mains – over target by 54% (493.6km of 320km) – due to clear decision framework to ensure water mains are renewed before repair costs exceed renewal costs.
- New mains laid by Sydney Water – under target by 95% (12.7km of 274km) – due to significantly lower growth in new development areas.
- New recycled water mains – under target by an average 43% (49.8km of 89km) – due to significantly lower growth in new development areas offset somewhat by increases in mains laid to existing customers.
- Pressure control areas – under target by 35% (65 of 100 areas) – due to consolidation of pressure control zones while delivering the same outcomes and delays in activating zones to appropriately consider the potential impact on commercial and industrial fire suppression systems.
- Renew critical sewers – over target by 28% (52.4km of 41km) – due to better condition assessment information and adjusted risk profiles.
- Dry weather overflow frequency – target not met – Sydney Water have set a revised target as a result of the SPS Upgrade Program completed in 2004/2005 with DECC and Sydney Water investigating each incident.
- Repair repeat overflow sewers – over target by 27% (324.2km of 256km) – due to increases in proposed works detailed in the approved business case for the Dry Weather Overflow Program 2006/07 – 2008/09.

Capital Investment Program Delivery Systems

In undertaking our review of Sydney Water's proposed capital and operating expenditure we applied the approach discussed previously, that is, focusing on the systems and procedures used by Sydney Water to develop and deliver their capital and operating expenditure programs.

We reviewed the various systems Sydney Water has in place with a view to considering a number of key issues that we believe contribute to the development and delivery of an efficient capital program. We reviewed the implementation and use of processes such as:

- project prioritisation – whereby capital projects are assessed using a risk based approach to determine the risk of deferring the project or reducing the level of expenditure or scope of works required;
- project consolidation – whereby projects with similar outcomes, locations, or scopes of work may be consolidated into a single program/project to achieve efficiencies in delivery; and
- program smoothing (offsetting uplifts) – whereby the cumulative impacts of projects in the program are reviewed at a high level to identify options for smoothing out peaks and troughs in the program and to potentially account for the external market's ability to undertake the projects planned.

Sydney Water provided a specific folio of information providing details on the systems categorised into the following three areas:

- annual capital planning cycle – including asset management plans, the 1 and 5 year capital investment programs, business cases, deliverability reviews, confidence limits assessment, 12 month capital budgets, and the capital optimisation tool;
- procurement plan – detailing the actual or planned delivery strategies for projects or programs that comprise the proposed capital and operating expenditure; and,
- capital monitoring and reporting systems – to report on performance in achieving the capital investment program through summary reports, quarterly and annual reports, year-end performance assessments, annual procurement reports, and post implementation reviews.

Asset Management

We have prepared a separate report, "*Review of Sydney Water's Asset Management Systems*" which provides more details on our review of Sydney Water's asset management systems and supports the findings/recommendations outlined below.

We note that Sydney Water has made significant investment and achieved improvements to their asset management and capital planning systems over the course of the current determination period, building on what has previously been assessed as a best practice system. Our analysis has indicated that there is still room for improvement and we acknowledge that Sydney Water is implementing an ongoing program of development.

We have made the following key observations:

1. Sydney Water has an effective strategic framework for asset management that integrates strategic business planning and tactical service delivery which is supported by well documented processes that enable transparency and support consistency.
2. Sydney Water has recently adopted the asset owner/asset operator model and this has enabled the successful application of their asset management strategy. This structure will help facilitate future improvements.
3. Sydney Water has been proactive in developing their asset management approach and has acted on numerous suggestions for improvements, highlighted by various reviews of their processes and procedures.
4. This improvement process is ongoing and whilst the integrated approach to planning is commendable, Sydney Water should be careful not to over complicate the various plans (asset specific, investment driver specific and geographic). The overlap between these plans and their specific uses needs to be clear and we acknowledge that Sydney Water has already considered this issue.
5. We recognise that Sydney Water's use of risk based planning is in line with current good practice.
6. We recognise that Sydney Water's use of whole of life costing is in line with current good practice.
7. Sydney Water has a rigorous investment planning process and formal, consistent procedures exist for capital planning approvals. This process (if not the tools in all cases) is commended.
8. Specifically, we feel that the application of the KANEW model to water infrastructure budget setting can be improved and we acknowledge that Sydney Water has already commenced appraising new statistical models for this purpose.
9. We feel that at present, the link between expenditure and subsequent improvements in the levels of service is not transparent enough. This needs to be quantified and fed into future investment prioritisation through monitoring of investments and trending levels of service over time. We acknowledge that Sydney Water is currently undertaking similar analysis for IPART for overflows and water continuity service levels.

10. We note that Sydney Water is currently developing an optimisation capability and this is commended.
11. Distribution pipe renewal rates appear appropriate at 0.5% per year. This rate of renewal is consistent with rates applied elsewhere. However, if this rate is maintained indefinitely, this would suggest an assumed asset life of 200 years. This is long and the rate will probably need to increase. Sydney Water needs to develop statistical deterioration models to determine the most appropriate rate. We acknowledge that Sydney Water understands the requirement for further statistical models/analysis and is assessing options.
12. The State of Assets reports meet the Operating Licence requirements.
13. It is recommended that in the development of its investment optimisation capability, Sydney Water adopts a current best practice approach and undertake the optimisation across the asset base and all of the various investment drivers. This should be achieved using a mathematical calculation engine based on, for example, genetic algorithms or equivalent. We acknowledge that Sydney Water is already developing a capital investment program optimisation tool.
14. We recommend that Sydney Water, in the development of its asset management planning approach, clarify the interactions between asset plans, area plans and service plans. Specifically the potential overlaps between these plans needs to be agreed and we acknowledge that Sydney Water has already considered this issue.
15. The Sydney Water trunk mains renewals program is significant and seems to be based on an asset life model only. We recommend that Sydney Water re-assess the program adopting a risk assessment approach incorporating specific asset condition assessment. For example, a business case should be produced for each trunk main investment proposal. We acknowledge that Sydney Water's trunkmain renewal program is currently based on condition assessment and that business cases are prepared for each renewal program. Further, we recognise that Sydney Water are currently trialling an improved econometric model for this program.
16. We recommend that if Sydney Water continues to apply the KANEW model for strategic budget estimation, they develop statistically valid asset life models and that the analysis is undertaken at a finer level of cohort detail. We acknowledge that Sydney Water is reviewing the use of the KANEW model but are also undertaking works to increase the cohort detail.
17. Move towards a 'monetary' based risk assessment and consideration of externalities and indirect costs to strengthen the risk based approach and improve risk management potential. We acknowledge that Sydney Water are currently trialling an improved econometric model specifically for trunkmains.

18. In order for Sydney Water to be able to closely link investment requirements to improvements in levels of service, asset data and service trends need to be improved and deterioration models developed. We acknowledge that Sydney Water is currently undertaking similar analysis for IPART for overflows and water continuity service levels.

Proposed Expenditure – Capital

We have reviewed Sydney Water's proposed capital expenditure in the light of our proposed approach and the issues discussed in relation to the expenditure delivery systems and we are confident that the proposed capital expenditure included by Sydney Water in their submission is efficient and that the expenditure proposed should be allowed without specific reductions to the capital expenditure.

We note that there are two specific projects/programs identified separately, the desalination project and the water recycling program (which includes the Western Sydney Recycled Water Plant, the Busby's Bore project, and the Camellia Recycling project), which together account for over 35% of the total proposed capital expenditure program.

We have reviewed the expenditure for the Sydney Desalination project and specifically the procurement methods used. We identified that the procurement method used for the desalination plant, a three stage competitive tendering process for a design, build, operate and maintain contract, is one of the most suitable methods of achieving the most efficient capital expenditure costs in the market at the time. In addition, the use of an alliance to construct the delivery pipelines was also an efficient method of accounting for uncertainties over the pipeline route and ground conditions.

We have also reviewed the expenditure for the three recycled water projects specifically identified and the procurement strategies used for these projects. The largest project, the Western Sydney Recycled Water Plant, was procured using a competitive tendering process for a design, build, operate and maintain contract. As indicated previously, competitive tendering processes are one of the most suitable methods of achieving the most efficient capital expenditure costs in the market at the time. The Camellia project is less than 10% the size of the Western Sydney project and it was procured using a competitive tendering process for a build, own, operate contract. The Busby's Bore project only requires capital expenditure of approximately \$1 million.

We have been unable to identify and segregate capital works projects related to developer contributed assets as Sydney Water does not report the information required to analyse this issue.

We are concerned over the market's ability to undertake the volume of work being released by Sydney Water, especially with the desalination plant's construction phase in 2008/2009 and part of 2009/2010. We note that Sydney Water has reported that 80% of the capital program in 2008/2009 is already committed either under contract or committed internally however we still believe that there is a need for smoothing of the proposed capital expenditure in 2008/2009 and also in 2009/2010 by deferring the expenditure into 2010/2011 and 2011/2012.

This smoothing helps reduce the peak of capital expenditure in 2008/2009 which is approximately \$81 million higher than the expenditure in 2007/2008 and the peak in 2009/2010 which is \$73 million higher again than the capital expenditure in 2008/2009.

Our brief research into the current state of the construction market indicated that the water, sewerage and drainage infrastructure construction market was forecast to grow by 25% in 2007/2008 and a further 23% in 2008/2009. Further, supply constraints in labour, sub-contractors, equipment and materials are expected with little relief foreseen in the short term.

We recommend a deferment of an amount of \$100 million from the 2008/2009 capital expenditure and a further \$150 million from the 2009/2010 capital expenditure in the water and wastewater products only. We recommend the allocation of the \$250 million of deferred expenditure equally in the proportions of \$125 million into 2010/2011 and \$125 million into 2011/2012.

We note that these proposed deferments of expenditure are not a reflection of Sydney Water's capacity to deliver the expenditure, but a reflection of our concerns that the construction market can deliver these expenditure proposals. We are of the opinion that the market would be able to deliver increased capital programs in 2010/2011 and 2011/2012 given that construction activities for the desalination plant would be completed at this time and given the longer lead time for Sydney Water to engage contractors to undertake the works.

Sydney Water has indicated that it does not agree with our initial recommendation to smooth the capital program. We recognise Sydney Water's view on this matter, however we still believe that there is scope for smoothing of the capital program to reflect the current high level of activity in the construction market.

Our recommended capital expenditure for the proposed price path period is shown in Table E.0.1 below.

Table E.0.1 Proposed and Recommended Capital Expenditure - 2007/2008 to 2011/2012

(\$m 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total 08-12
SWC Proposed						
- Water	181	226	263	264	226	979
- Wastewater	433	428	466	377	422	1,693
- Stormwater	5	12	13	17	12	55
Subtotal	619	666	743	658	661	2,727
Desalination Plant	679	795	316	0	0	1,111
Recycled Water	37	99	84	16	0	199
SWC Proposed Total	1,335	1,559	1,143	674	661	4,037
Halcrow Recommended						
- Water	181	166	193	284	336	979
- Wastewater	433	388	386	457	462	1,693
- Stormwater	5	12	13	17	12	55
Subtotal	619	566	593	758	811	2,727
Desalination Plant	679	795	316	0	0	1,111
Recycled Water	37	99	84	16	0	199
Halcrow Proposed Total	1,335	1,459	993	774	811	4,037

Source: "Sydney Water 2007 AIR and SIR (BT) - 23 Oct 2007.xls"

Notes: Capital expenditure shown excludes capitalised borrowing costs

Proposed Expenditure - Operating

We have reviewed Sydney Water's proposed operating expenditure by identifying key cost drivers and by reviewing the detailed increases and reductions in expenditure proposed. We undertook detailed interviews with Sydney Water staff and have identified and reviewed key documentation and supporting information provided by Sydney Water.

We found that in real terms, Sydney Water's proposed operating expenditure is not significantly different from the equivalent expenditure levels approved in the 2005 IPART determination. Our analysis shows that the average approved operating expenditure from the 2005 IPART Determination was \$949 million (refer Table 8.12 pg 90 of 2005 IPART Determination factored to \$m 2007/08 real values) whereas the average of Sydney Water's proposed operating expenditure is \$1025 million (refer Table 2.8), an increase of only 8%.

We also note that Sydney Water's proposed operating expenditure is relatively smooth over the price path period with a maximum variation of around 2% in the expenditure. We identified that the average operating expenditure over the period from 2008/2009 to 2011/2012 represents a 16.2% increase over the long term average expenditure covering the period from 1992/1993 to 2007/2008. If we compare the proposed average expenditure to the current determination period of 2005/2006 to 2009/2010 we find that it represents an increase in operating expenditure of only 6.1%.

We have also reviewed the processes that Sydney Water has in place to develop the operating expenditure program. Sydney Water provided Business Cases for major projects identified including the Western Sydney Recycled Water Initiative Replacement Flows project, and specific folios of information for the Sydney Desalination Plant.

We note that Sydney Water's proposed operating expenditure includes a number of new, mandated items (desalination plant, demand management measures, etc.) and items over which Sydney Water has limited control (primarily bulk water purchases). When the impacts of these items are accounted for, we found that Sydney Water's underlying or business as usual operating expenditure is decreasing over the regulatory period.

We highlighted a potential issue with how the DBOM contract for the desalination plant covers potential adjustments to the operating expenditure however Sydney Water provided explanations as to how the changes to the contract would be dealt with. In regards to the key issue identified, that is the price of renewable energy, Sydney Water reported that the potential impacts of this would not be clear until the contract for supply of the renewable energy was fully negotiated. For this matter, we note that Sydney Water is being advised by external consultants and specialists in renewable energy and at this stage we must rely on the advice provided to Sydney Water by these specialists to ensure that the risks are appropriately dealt with.

Sydney Water has proposed efficiency gains totalling approximately \$105 million over the price path period and has already incorporated these gains into the proposed operating expenditure. These efficiency gains are higher than the gains achieved during the last determination period.

We note that IPART has sought explanation of historical operating expenditure reductions of around \$320 million and why this level of expenditure could not be maintained in the proposed operating expenditure. Our analysis of Sydney Water's historical operating expenditure indicates that this major reduction occurred between the period from 2002/2003 to 2005/2006 when expenditure decreased from \$1,044 million to \$735 million. Our analysis indicates that the primary factor is this reduction appears to be the employee provisions line item since excluding this item from the operating expenditure indicates that the base operating expenditure actually increased from \$884 million in 2002/2003 to \$885 million in 2005/2006. The employee provisions line item had reported expenditure of \$139 million in 2002/2003 and expenditure of -\$140 million in 2005/2006.

We are slightly concerned that Sydney Water has not allowed for the potential operating expenditure resulting from capital projects constructed during the price path period (with the exception of the desalination plant and the recycled water projects where the operating expenditure was determined and set as part of the competitive tendering process). However Sydney Water has decided to absorb any additional operating expenditure resulting from capital projects by offsetting the likely increases in expenditure with equivalent additional efficiency savings, on top of the proposed gains of \$105 million outlined above. We are comfortable with this position and believe that this sets a challenge goal for Sydney Water over the price path period.

We highlighted the potential for operating expenditure savings from capital projects such as renewals however Sydney Water provided explanations on this matter and we acknowledge their point of view. We also made some comments as to whether the level of expenditure on areas such as mains renewals was sufficient to have a significant impact on the magnitude of the critical mains renewals program.

Our review of Sydney Water's proposed operating expenditure, at this stage, has generally indicated that the processes used by Sydney Water to develop their operating expenditure program appear to be reasonably robust and therefore that the proposed expenditure is likely to be efficient.

The proposed and recommended operating expenditure for the price path period is shown in Table E.0.2 below.

**Table E.0.2 Proposed and Recommended Operating Expenditure -
 2007/2008 to 2011/2012**

(\$m 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total 08-12
SWC Proposed						
- Water	587.9	584.7	604.4	598.5	590.2	2,377.8
- Wastewater	394.5	388.5	383.3	377.6	376.2	1,525.7
- Stormwater	11.4	11.1	10.3	10.8	10.8	43.0
Subtotal	993.8	984.3	998.0	986.9	977.2	3946.5
Desalination Plant	0.0	0.0	27.5	53.4	53.7	134.5
Recycled Water	0.0	0.0	3.3	7.8	10.3	21.5
SWC Proposed Total	993.8	984.4	1028.8	1048.2	1041.2	4,102.6
Halcrow Recommended						
- Water	587.9	584.7	604.4	598.5	590.2	2,377.8
- Wastewater	394.5	388.5	383.3	377.6	376.2	1,525.7
- Stormwater	11.4	11.1	10.3	10.8	10.8	43.0
Subtotal	993.8	984.3	998.0	986.9	977.2	3946.5
Desalination Plant	0.0	0.0	27.5	53.4	53.7	134.5
Recycled Water	0.0	0.0	3.3	7.8	10.3	21.5
Halcrow Proposed Total	993.8	984.4	1028.8	1048.2	1041.2	4,102.6

Source: "Sydney Water 2007 AIR and SIR (BT) - 23 Oct 2007.xls"

Notes:

Conclusions / Recommendations

We have reviewed Sydney Water's historical and proposed capital and operating expenditure for the period from 2005/2006 to 2011/2012 using an approach that focused in the systems and processes used by Sydney Water to develop the expenditure rather than the specific expenditure values applicable for each specific project or program of works.

Our review of Sydney Water's historical performance in meeting the expenditure targets set in the 2005 IPART Determination indicated that Sydney Water had performed well in achieving these targets with a variance of 8.7% identified for the operating expenditure and a variance of 6.2% for the capital expenditure.

In regards to historical expenditure, we recommend:

- It is our opinion that Sydney Water's historical operating expenditure for the period from 2005/2006 to 2007/2008 was efficient.
- It is our opinion that Sydney Water's historical capital expenditure for the period from 2005/2006 to 2007/2008 was prudent and efficient and can be rolled into the regulatory asset base.

Our review of Sydney Water's proposed expenditure revealed that there is some potential for smoothing of the capital program to account for our concerns that the construction market may not be able to meet the works proposed in Sydney Water's capital program. Our review of operating expenditure indicated that there are no major issues with the operating expenditure and it is in fact relatively consistent with historical figures.

In regards to proposed expenditure, we recommend:

- It is our opinion that Sydney Water's proposed operating expenditure for the period from 2008/2009 to 2011/2012 is efficient. Our recommended operating expenditure totals are shown below.

(\$000 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
SWC Proposed Total	993.8	984.4	1028.8	1048.2	1041.2	4,102.6
Halcrow Proposed Total	993.8	984.4	1028.8	1048.2	1041.2	4,102.6

- It is our opinion that Sydney Water's proposed capital expenditure for the period from 2008/2009 to 2011/2012 requires some smoothing. We propose a deferment of capital expenditure in the amount of \$100 million from 2008/2009 and \$150 million from 2009/2010 and allocated in the proportion of \$125 million to 2010/2011 and \$125 million to 2011/2012. Our recommended capital expenditure profile is shown below.

(\$000 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
SWC Proposed Total	1,335	1,559	1,143	674	661	4,037
Halcrow Proposed Total	1,335	1,459	993	774	811	4,037

In the process of undertaking our review, we identified a number of inconsistencies in the information provided by Sydney Water relating to the format of the expenditure values provided, variances in the expenditure values reported between and within documents provided, and a lack of consistency in how the expenditure values were reported, that is, in real or nominal terms for the 2007/2008 year or for the 2008/2009 year.

In regards to the presentation of expenditure values and supporting information, we recommend:

- **That Sydney Water and IPART discuss and attempt to develop a consistent format for the provision of information for this review. We suggest consistent reporting by major cost driver and also by individual project or program of works.**
- **That Sydney Water ensure that the information provided for the review, including the AIR/SIR and supporting folios, be cross checked to ensure expenditure values are consistent.**

1 Introduction

1.1 *General*

Halcrow was engaged by the Independent Pricing and Regulatory Tribunal (IPART) to undertake an independent review of Sydney Water Corporation's (Sydney Water) capital and operating expenditure and asset management plan in order to set prices for regulated services for the period from 1 July 2008 to 30 June 2013 ("the price path period").

IPART conducts reviews to determine the maximum prices that can be charged by the Sydney Water in a regular cycle and last set maximum prices in 2005 for the period from 1 October 2005 to 30 June 2009. The State Government, however, has directed that IPART include in the maximum prices an allowance representing the efficient cost of complying with requirements on Sydney Water to construct a desalination plant and associated pipelines.

This State Government direction has led to IPART making a decision to undertake a comprehensive review of Sydney Water's proposed capital and operating expenditure and asset management plans prior to the expiration of the previous price path period on 30 June 2009. The intention is for the new price review to set prices for the period from 1 July 2008 to 30 June 2013.

1.2 *Scope of Services*

The primary objectives of this review were to assess, for Sydney Water's regulated water, sewerage and drainage businesses, the following:

- the efficiency of Sydney Water's operating expenditure for the period from 1 July 2005 to 30 June 2007;
- the efficiency of Sydney Water's proposed operating expenditure for the period from 1 July 2008 to 30 June 2013;
- the prudence of Sydney Water's capital expenditure for the period from 1 July 2005 to 30 June 2007; and
- the efficiency of Sydney Water's proposed capital expenditure for the period from 1 July 2008 to 30 June 2013.

There were also a number of specific issues that were to be taken into account in undertaking this project, including the following

- Ministerial directions under Section 16A of the Independent Pricing and Regulatory Tribunal Act 1992 requiring that IPART include the efficient cost of Sydney Water complying with State Government directions to construct a desalination plant and associated infrastructure and a number of water recycling projects (which includes the Western Sydney Recycled Water Plant, the Busby's Bore project, and the Camellia recycling project);
- relevant legislation, regulatory requirements and Government policies and initiatives;
- current and projected capacity;
- growth in customer numbers;
- current asset condition and renewal requirements;
- asset management frameworks, plans and practices;
- existing operational requirements;
- ringfencing of and cost transfers between regulated and unregulated activities;
- the specific regional and demographic circumstances of each agency;
- implications for expenditure of demand management initiatives;
- efficient costs of providing the relevant water, sewerage, stormwater and recycled water services;
- potential for contestability in the provision of water, sewerage, stormwater and recycled water services;
- current and likely future environmental, health and safety standards; and
- current and likely future service obligations.

1.3

Our Approach

1.3.1

General

Our overall approach for this review involved focusing on the processes and systems used by Sydney Water to develop the programs for both capital and operating expenditure. A detailed investigation of each project or program of works included in the capital or operating expenditure is not feasible, in terms of time and budget, for this review. Furthermore, the information provided was not, in many cases, sufficient or in the appropriate format, the undertake a detailed assessment on a project/program of works basis.

Instead, we have focussed on the processes that lead up to a project or program of works being included in the capital and operating expenditure programs. If we can establish confidence that the processes used are robust, detailed, and appropriately take into account the specific issues identified in the scope of services, then we can be reasonably confident of the efficiency of the capital and operating expenditure programs developed.

1.3.2

Capital Expenditure

In the review of Sydney Water's capital expenditure the following tasks were intended to be undertaken. Those tasks were modified as necessary to suit the availability of information from Sydney Water, as noted below:

- Assessment of Sydney Water's capital works programs and projects from 2005/06 to 2012/2013, attempting to separately identify projects satisfying IPART's materiality threshold of \$1,000,000.

Sydney Water provided us with a capital projects list ("*SWC 2-005-12 CIP Projects and Cashflows.pdf*") which represented about 83% of the total capital program. This list identified that 106 projects (95% of the 112 projects in the 2005-2012 capital program) would satisfy the \$1 million threshold, 65 projects would satisfy a \$10 million threshold and 16 projects would satisfy a \$50 million threshold.

It would take a significant amount of time to review the projects satisfying these thresholds in detail. We identified a range of projects for review and Sydney Water provided details such as Business Cases and other supporting information. A list of business cases provided by Sydney Water is presented in **Appendix A**.

- Assessment, against industry best practice, of Sydney Water's asset management frameworks, processes and plans, and the rigour of the Sydney Water's approach to managing the whole life of assets having regard to the following:
 - current and future service outcomes and performance requirements, including customer service and environmental outcomes;
 - the way in which Sydney Water manages the risks associated with asset failure or underperformance;
 - the clarity of drivers for capital expenditure; and
 - minimising costs over the life of the assets.
- Assessment of any particular concerns or issues relating to the process for determining and prioritising future infrastructure expenditures for Sydney Water.
- Assessment of the prudence of Sydney Water's capital expenditure for the period from 2005/2006 to 2006/2007 and nomination of a value for any capital expenditure considered imprudent. Prudence should be assessed against identified drivers and variations from capital expenditure proposals identified at the 2005 price review should be examined.
- Assessment of the efficiency of Sydney Water's capital expenditure program for the period from 2007/2008 to 2012/2013 and provision for each year reasoned estimates of the level of capital expenditure that is considered efficient in order for Sydney Water to undertake its business and functions. In the case of the Kurnell desalination plant and associated distribution pipeline, as well as other projects captured under the section 16A requirements, the

assessment covered only whether the proposed expenditure represented the efficient costs of meeting the Government's requirements.

- Assessment of capital works projects associated with assets for which developers will either contribute to the cost of provision or will build and possibly hand over to the agency and reconcile actual and proposed developer funded capital expenditure with forecast capital expenditure in Development Servicing Plans (DSPs).

We attempted to undertake this assessment, however reporting of projects undertaken by developers is minimal and the volume of information available is very small. The AIR/SIR reports on total capital contributions from developers across all development areas, income from DSP areas, and proposed capital expenditure in specific DSP areas. No information was available listing specific projects undertaken or any related historical capital expenditure.

Our review of the proposed new capital expenditure listed in the DSPs indicated that the figures correlated reasonably well with the proposed capital expenditure included in the AIR/SIR.

1.3.3

Operating Expenditure

In the review of Sydney Water's operating expenditure the following tasks were undertaken.

- Review of the operating expenditure from 2005/06 to 2012/13, to the extent necessary to undertake the following tasks.
- Review of Sydney Water's functions and costs of operations, including:
 - operations, support functions;
 - maintenance and servicing activities; and
 - administration and overheads (both direct and corporate allocations).
- Review of the appropriateness and performance of each of these functions against industry best practice.
- Review of the cost effectiveness and efficiency of the functions.
- Review of the variation in operating expenditure from what was proposed in the 2005 determination.
- Identification of the reasons for any costs higher than normal commercial levels, for example government ownership, awards and conditions, operating environment, staffing levels, assets, technology, or other factors.
- Identification and analysis of the agency's potential for cost reduction for each function and make reasoned recommendations about efficiency gains that the Tribunal can consider when determining efficient operating expenditure levels for price setting. If current expenditure in an area of operations is assessed as inadequate, specification and quantification of recommended additional expenditure should be undertaken.

- Assessment of the efficiency of Sydney Water's proposed level of operating expenditure for each year between 2007/08 and 2012/2013 and provide, for each year, reasoned estimates of the level of operating expenditure that is required to efficiently undertake Sydney Water's regulated functions.
- Identification and analysis of any transfer of costs between regulated and unregulated parts of Sydney Water's business, subsidiary or parent agency or businesses and comment on any such transfers which in the opinion of the consultant are inappropriate.

1.3.4

Asset Management

In the review of Sydney Water's asset management plan, the following tasks were undertaken:

- Assessment of Sydney Water's asset management systems to ensure that Sydney Water is managing its assets consistent with clause 4.8 (a) – (d) of the Operating Licence; and
- assess Sydney Water's State of the Asset Report to ensure that it complies with the Operating Licence.

1.4

Review Process

The process undertaken for our review of Sydney Water involved the following steps:

- *Inception meeting with IPART – 04 September 2007*
Our team met with representatives from IPART to discuss and clarify the scope of the project, the proposed timeframes for each milestone and deliverable, and various other contractual issues.
- *Presentation by Sydney Water – 04 September 2007*
Representatives from Sydney Water gave a presentation providing some background to the current review and highlighting some of the key issues.
- *Interviews with Sydney Water – 13 September 2007*
Our team met with Sydney Water and discussed historical capital and operating expenditure. Sydney Water staff gave presentations on the key issues including changes in expenditure from the previous determination period and variances between budgeted and actual expenditure.
- *Receipt of SWC Submission to IPART – 14 September 2007*
Our team received a copy of Sydney Water's submission to IPART for the current price determination for review.
- *Interviews with Sydney Water – 17 – 21 September 2007*
Our team met with Sydney Water and discussed their proposed capital and operating expenditure. Sydney Water staff gave presentations on key issues/topics including forecast operating expenditure, forecast capital

expenditure, strategic asset management, information technology systems and projects, review of the AIR/SIR, asset lives and value estimates, the desalination plant, developer charges and growth strategies, business planning and processes, and water conservation.

- *Information requests*

Our team submitted a number of information requests to Sydney Water to seek clarifications or additional detail to support our analysis.

- *Draft Report Workshops – 13-16 November 2007*

We set up a number of workshops with Sydney Water and IPART. Our team prepared presentations outlining the initial findings of our analysis, identifying key information gaps for discussion, and detailing our draft recommendations on historical and proposed capital and operating expenditure.

The workshops allowed Sydney Water to respond to our initial findings and provide additional information to further support our analysis.

- *Preparation of Draft Report*

We then completed the draft report outlining the results of our analysis, including the outcomes of the workshops, and submitted this report to IPART and Sydney Water for comment.

- *Presentation of Draft Report – 29 November 2007*

Our team presented the results contained in our Draft Report to the Independent Pricing and Regulatory Tribunal and discussed our analysis with the Tribunal.

- *Preparation of Final Report*

Our team then prepared a Final Report for submission to IPART and Sydney Water detailing the final results of our analysis and the final recommendations on historical and proposed capital and operating expenditure. The Final Report incorporated comments made on the Draft Report by IPART and Sydney Water, where appropriate.

1.5

Sydney Water's Operational Framework

1.5.1

General

Sydney Water provides drinking water, wastewater, recycled water and some stormwater services to the Sydney metropolitan, Blue Mountains and Illawarra regions. Sydney Water's area of operation covers approximately 13,000 square kilometres stretching from Broken Bay in the north to the Illawarra region in the south and west to the Blue Mountains.

Sydney Water currently services a population of around 4.2 million people, however, reports that this figure is expected to increase to around 5.3 million over the next 25 years.

1.5.2

Regulatory Framework

Sydney Water is a State owned corporation, wholly owned by the New South Wales Government. It was established under the *Sydney Water Act 1994* and the *State Owned Corporations Act 1989*.

Sydney Water has three (3) equal principal objectives, which are:

- to protect public health;
- to protect the environment; and
- to be a successful business.
- Sydney Water Act 1994

Sydney Water operates under an Operating Licence issued pursuant to Part 5 of the *Sydney Water Act 1994*. The objective of the Operating Licence is to enable and require Sydney Water to lawfully provide services within its area of operations, specifically:

- to meet the objectives and other requirements imposed on it by the Sydney Water Act 1994;
- to comply with the quality and performance standards in the Licence;
- to recognise the rights given to customers and consumers; and
- to be subject to operational audits of compliance with the Licence.

Sydney Water's operations are regulated by a number of agencies, including:

- Independent Pricing and Regulatory Tribunal (IPART);
- Water Administration Ministerial Corporation (WAMC) [under the Department of Water and Energy (DWE)];
- NSW Department of Health (NSW Health); and
- Department of Environment and Climate Change.

Sydney Water is also bound by a *Customer Contract* which outlines the rights and obligations of the agency's customers and sets out minimum standards of customer service.

1.5.3

Metropolitan Water Plan

Sydney Water is playing a key role in the implementation of the NSW Government's *Metropolitan Water Plan* which sets out how the Government will provide a secure supply of water that can meet the long term needs of Sydney. Specific components of the Plan being implemented by Sydney Water include:

- several large recycling schemes, which aim to increase the proportion of recycled water supply to 12 percent of Sydney's needs by 2015;
- demand management programs for business and customers; and
- construction of a desalination plant and delivery pipelines.

1.5.4

Water Balance

Both the 2004 and 2006 *Metropolitan Water Plans* recognised that, without action, Sydney's demand for water would exceed supply in the period to 2015. This identified supply imbalance is a result of both the current drought (short term) and longer terms issues including an apparent reduction in catchment rainfall, possibly due to climate change, and population growth in both the greater Sydney area and the catchments.

Inflows to Sydney's dams for the period 1991 to 2006 have been in the order of 614 gegalitres per year, which compares to 2,153 gegalitres for the previous 40 years and 951 gegalitres per year for the previous dry period from 1909 to 1948.

Actions identified to secure an adequate water supply include increased recycling, reduced demand and an increase in supply.

Sydney Water is currently supplying in the order of 21 gegalitres of recycled water per year, and planned initiatives are expected to increase this volume to 70 gegalitres per year. These planned initiatives include increased recycling at Rouse Hill and Wollongong; the Camelia Recycled Water Project, the Western Sydney Recycled Water Plant/Replacement Flows Project and a number of local projects.

Per capita demand for water has reduced significantly over the past 20 years, however, it is expected that a comprehensive range of tailored water savings initiatives will see a total reduction of 145 gegalitres per year by 2015.

Construction of the new desalination plant on the Kurnell peninsula is a key initiative aimed at increasing supply by approximately 77 gegalitres per year. Other initiatives have included accessing deep storage reserves in existing reservoirs and preparing for access to groundwater reserves, if required.

1.5.5

Operational Performance

Pursuant to the National Water Initiative (NWI), State and Territory Governments have agreed to report independently, on an annual basis, to facilitate benchmarking of pricing and service quality for urban and rural water delivery agencies. Accordingly, the National Water Commission, the NWI parties and the Water Services Association of Australia (WSAA) have developed the National Performance Framework to facilitate nationally consistent reporting based on agreed performance indicators and definitions. This National Performance Framework builds on previous benchmark reporting undertaken by WSAA on behalf of member organisations and presented in the publication *WSAA Facts*.

The National Performance Framework provides a basis for comparing both the operational and financial performance of Sydney Water in comparison with other major urban water utilities.

The following performance indicators have been selected to enable a comparison between selected major urban water utilities:

- water main breaks per 100km of main;
- unplanned water supply interruptions per 1,000 properties (excluding property service connections);
- water quality complaints per 1,000 properties;
- sewer main breaks and chokes per 1000 properties;
- operating cost per property for water supply; and
- operating cost per property for sewerage services.

This information is presented in **Table 1.1** to **Table 1.6**.

Table 1.1 Water Main Breaks per 100km of Main

Agency	Water Main Breaks per 100km of Main					
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACTEW	18.4	18.8	26.3	26.3	23.8	52.0
Brisbane Water	37.6	36.5	36.7	34.5	40.0	-
City West Water	58.3	56	102.9	91.6	65.9	27.8
Gold Coast Water	9.5	13.9	16.6	15.5	18.5	16.6
Gosford City Council	35.1	24.4	31.8	36.4	29.8	43.0
Hunter Water	43.0	42.4	46.6	45.9	42.2	52.5
SA Water	24.5	22.1	24.2	23.4	24.6	21.3
South East Water	3.4	3.4	2.8	2.2	1.8	18.4
Sydney Water	37.7	37.5	50.7	38	37.8	34.5
Water Corporation	12.6	12.9	13.2	13.6	13.8	-
Yarra Valley Water	55.9	40.7	56.2	51.3	41.4	22.6

Source: *National Performance Report 2005-06 – Major Urban Water Utilities*
 (Figures for 2000-01 to 2004-05 from *WSAA Facts 2005*)

**Table 1.2 Unplanned Water Supply Interruptions per 1000 Properties
 (excluding property service connections)**

Agency	Unplanned Water Supply Interruptions per 1000 Properties					
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACTEW	108.0	91.8	151.8	151.3	136.1	138.5
Brisbane Water	176.9	176.1	170.6	145.1	130.9	105.5
City West Water	-	-	-	-	316.6	284.7
Gold Coast Water	-	-	180.6	130.5	219.0	155.0
Gosford City Council	202.5	156.0	214.7	274.3	232.3	295.0
Hunter Water	194.7	168.3	419.5	368.4	386	234.2
SA Water	-	-	-	-	-	-
South East Water	302.0	238.0	261.0	231.0	187.0	184.5
Sydney Water		197.3	274.9	260.4	233.8	196.4
Water Corporation	64.5	70.1	75.8	65.2	75.5	75.1
Yarra Valley Water	443.1	318.3	377.2	319.3	260.4	254.7

Source: *National Performance Report 2005-06 – Major Urban Water Utilities*

Table 1.3 Water Quality Complaints per 1000 Properties

Agency	Water Quality Complaints per 1000 Properties					
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACTEW	2.3	2.8	1.8	1.9	2.5	6.1
Brisbane Water	8.1	4.4	3.3	4.8	3.7	2.9
City West Water	1.9	1.8	1.1	0.8	1.3	1.4
Gold Coast Water	5.7	9.3	5.4	3.6	6.1	3.3
Gosford City Council	19.7	6.8	6.1	10.7	13.4	57.5
Hunter Water	8.1	8.1	12.8	7.3	6.3	6.8
SA Water	2.4	1.7	1.6	1.1	1.2	0.9
South East Water	26	21.1	29	26.6	22.7	1.7
Sydney Water	3.2	2.4	2	1.4	1.1	0.8
Water Corporation	18.8	16.5	18.6	20.1	17.3	11.3
Yarra Valley Water	5.4	5.5	5.1	5.6	6.5	6.5

Source: *National Performance Report 2005-06 – Major Urban Water Utilities*

(Figures for 2000-01 to 2004-05 from *WSAA Facts 2005*)

Table 1.4 Sewer Main Breaks and Chokes per 1000 Properties

Agency	Sewer Main Breaks and Chokes per 1000 Properties					
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACTEW	25.1	22.8	26.5	23.3	28.5	23.1
Brisbane Water	6.2	5.8	5.3	3.8	4.6	4.3
City West Water	3.6	3.3	4.1	3.7	3.2	3.1
Gold Coast Water	2.8	1.3	2.7	2.1	2.5	2.3
Gosford City Council	5.3	8.4	8.5	9.2	10.8	9.7
Hunter Water	13.7	12.5	14.9	14.2	15.1	12.8
SA Water	5.9	5.8	7.1	7.0	8.0	7.9
South East Water	1.8	1.6	2.3	2.5	2.1	2.3
Sydney Water	10.2	9.8	11.9	10.4	11.7	12.3
Water Corporation	3.8	3.5	3.8	3.4	3.2	3.1
Yarra Valley Water	4.8	4.2	6.0	6.3	5.9	5.7

Source: *National Performance Report 2005-06 – Major Urban Water Utilities*

Table 1.5 Operating Cost per Property for Water Supply (\$/property)

Agency	Operating Cost for Water Supply (\$/property)					
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACTEW	265	300	294	308	308	235
Brisbane Water	293	282	228	229	246	238
City West Water	331	301	309	288	301	277
Gold Coast Water	135	129	176	188	176	230
Gosford City Council	-	-	-	-	-	294
Hunter Water	-	-	-	-	-	147
SA Water	185	172	194	176	178	179
South East Water	186	175	185	173	180	177
Sydney Water	-	-	258	228	237	268
Water Corporation	163	164	159	168	176	173
Yarra Valley Water	-	-	-	-	-	180

Source: *National Performance Report 2005-06 – Major Urban Water Utilities*

Table 1.6 Operating Cost per Property for Sewerage Services (\$/property)

Agency	Operating Cost for Sewerage Services (\$/property)					
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
ACTEW	285	295	291	294	280	256
Brisbane Water	228	236	209	187	180	173
City West Water	248	227	222	214	237	220
Gold Coast Water	186	179	189	206	235	251
Gosford City Council	-	-	-	-	-	287
Hunter Water	-	-	-	-	-	164
SA Water	122	132	134	140	148	148
South East Water	197	196	194	194	207	202
Sydney Water	-	-	281	205	205	131
Water Corporation	155	154	157	174	185	181
Yarra Valley Water	-	-	-	-	-	206

Source: *National Performance Report 2005-06 – Major Urban Water Utilities*

An assessment of Sydney Water's performance in comparison with the other agencies selected for comparison reveals the following:

- *water main breaks* – Sydney Water's performance has been improving over the last three (3) years, and was close to average performance in 2005-06;
- *unplanned water supply interruptions* – Sydney Water's performance has been improving over the last three (3) years, and was close to average performance in 2005-06;
- *water quality complaints* – Sydney Water's performance has been improving over the last five (5) years, and was the highest performance in 2005-06;
- *sewer main breaks and chokes* – Sydney Water's performance has fallen slightly over recent years and was close to the highest incidence of breaks and chokes in 2005-06;
- *operating costs for water supply* – Sydney Water's operating costs have been increasing over recent years, and were close to the highest in 2005-06 ; and
- *operating costs for sewerage services* – Sydney Water's operating costs have been falling over the last three (3) years, and were lowest in 2005-06.

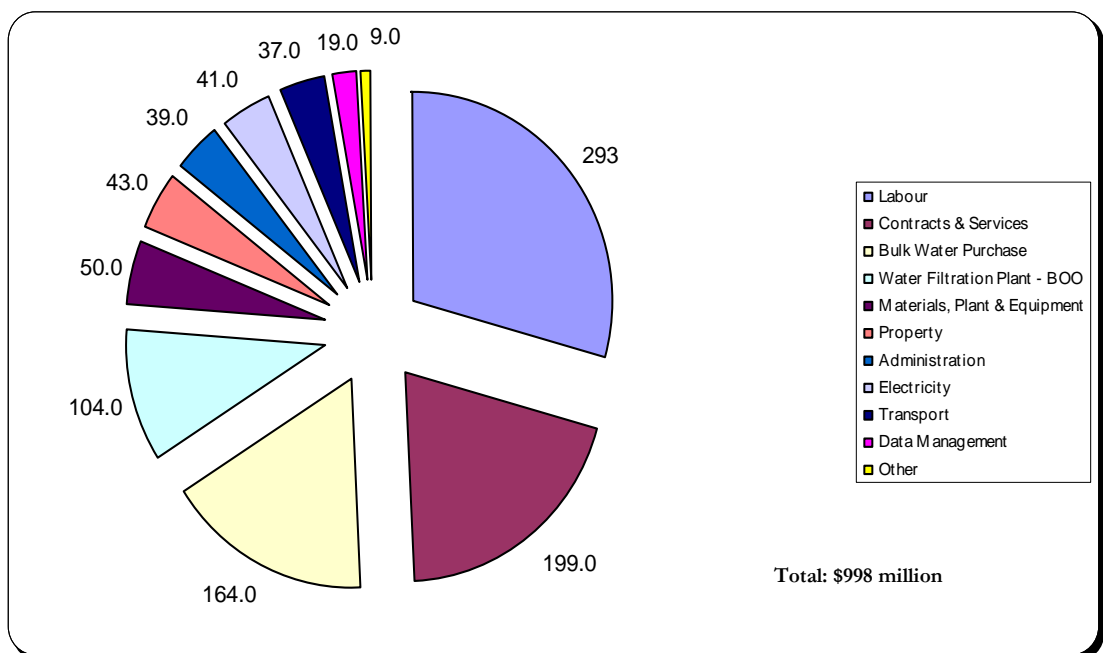
2 Operating Expenditure

2.1 Overview of SWC Submission to IPART

2.1.1 General

Sydney Water has a budgeted operating expenditure program of \$998 million for 2007/2008.

The key components of Sydney Water's operating expenditure program are labour, contractors/external consultants and bulk water purchases, with these and the other components of the operating expenditure shown in **Figure 2.1** following.



Source: Sydney Water Submission to IPART Figure 3.1 with figures factored to real \$2007-08.

Figure 2.1 Sydney Water Budgeted Operating Expenditure for 2007/2008 (\$m 2007/2008 real)

The following sections summarise the historical expenditure targets, efficiency improvements, proposed expenditure and proposed efficiency figures presented in the *Sydney Water Submission to IPART* dated 14 September 2007. The figures presented below have been adjusted from real \$2008/2009 values to real \$2007/2008 values (to comply with IPART's requirements). Some of the figures do not match the information presented in subsequent sources provided by Sydney Water, as discussed in **Section 2.2**.

2.1.2

Historical Expenditure Targets

Sydney Water reported that they have performed well against the operating expenditure targets set for the current determination period with only a 1.5% or \$43 million total variance between the total actual expenditure and the recommended total expenditure over the period from 2005/2006 to 2007/2008. Within each financial year, Sydney Water's typical performance is about ± 3 -3.5% of the recommended expenditure. These results are shown in **Table 2.1** below.

Table 2.1 Sydney Water Historical Operating Expenditure 2005/2006 to 2007/2008 (Submission to IPART)

(\$m 2007/2008 real)	2005/2006	2006/2007	2007/2008	Total
IPART Determination	964.1	963.7	963.0	2,890.8
Sydney Water performance	933.3	1,003.0	997.0	2,933.3
Variance (\$)	-30.8	39.3	34.0	42.5
Variance (%)	-3.2%	4.1%	3.5%	1.5%

Source: Sydney Water Submission to IPART Table 3.1 with figures factored to \$m 2007/08 real.

The actual historical expenditure includes a number of programs, identified in the 2006 Metropolitan Water Plan, that were not included in the 2005 Price Determination. These include expansion of existing residential and business demand management programs, mandated contributions to the Water Savings Fund, new demand management programs, and recycled water implementation projects. Together these programs total around \$121 million over the current price path period.

If the expenditure from these unfunded programs is separated from the total operating expenditure, then Sydney Water's performance level adjusts to show an underspend of about \$78 million or about 2.8% of the recommended operating expenditure.

2.1.3

Efficiency Improvements

Sydney Water identified a range of efficiency programs in their submission to the 2005 Price Determination and anticipated that the programs would deliver expenditure savings totalling \$83 million over the period from 2005/2006 to 2007/2008.

Sydney Water reports in their Submission to IPART that they will achieve this target and have in fact budgeted for efficiency savings totalling approximately \$89 million against the baseline year of 2004/2005. Sydney Water has achieved their efficiency targets through a number of programs including:

- Workplace reforms to use staff more effectively.

- IT improvements to automate tasks, streamline data collection and reporting, and the consolidation of IT infrastructure.
- Closure of customer service centres and consolidation of developer centres – expected to save \$4.2 million.
- Reduction in insurance costs arising from transferring to the State Government's Treasury Managed Fund and from appointing a new insurance broker – saving \$5.5 million in 2006/07 and \$1.5 million each subsequent year.

2.1.4

Proposed Expenditure

Sydney Water is proposing an increased operating expenditure program compared to the previous determination period, however the program remains steady over the period from 2008/2009 to 2011/2012. Sydney Water's proposed operating expenditure program is shown in **Table 2.2** below.

Table 2.2 Sydney Water Proposed Operating Expenditure 2008/2009 to 2011/2012 (Submission to IPART)

(\$m 2007/2008 real)	2008-2009	2009-2010	2010-2011	2011-2012	Total 2008-2012
Water	484.8	506.4	504.3	505.3	2,000.8
Wastewater	323.9	316.7	310.6	309.6	1,260.8
Stormwater	9.2	9.2	9.2	9.2	36.9
Corporate	216.3	216.3	213.2	203.0	848.7
Subtotal	1,034.2	1,048.6	1,037.3	1,027.1	4,147.2
Desalination	0.0	28.7	56.4	56.4	141.5
Recycled Water	0.0	3.1	8.2	11.3	22.6
TOTAL	1,034.2	1,080.4	1,101.9	1,094.7	4,311.2

Source: Sydney Water Submission to IPART Table 3.5. A similar breakdown of 2007/08 figures was not provided in the Submission.

Sydney Water has reported that the proposed operating expenditure includes significant expenditure related to new projects required under the Metropolitan Water Plan such as the desalination plant and a number of recycled water plants. There are also increases in other areas such as demand management initiatives, the leak reduction program, and as a result of contributions to the Climate Change Fund (originally referred to as the Water Savings Fund). Sydney Water also reports that property costs have increased due to higher land taxes, increased property maintenance and rental requirements for the new head office, and that bulk water charges from the Sydney Catchment Authority have increased.

Sydney Water indicated that while the total operating expenditure is increasing marginally, the underlying core operating expenditure (expenditure excluding the desalination plant and recycled water plant related costs, operating new assets, the mandated demand management activities, BOO contract costs, and SCA bulk water purchases) reduces by \$34 million, or 5.1%, over 2007/2008 to 2011/2012.

Sydney Water has reported that net operating expenditure savings are related to demand management activity reductions (\$20 million); professional services reductions (\$12.1 million, including \$2.2 million from the Workplace Accommodation Program and \$3.1 million reclassification of Asset Management Projects to Contractors); electricity usage reductions due to negotiated price reductions after 2007/2008 (\$10.3 million); labour efficiencies (\$8.4 million); and a reduction in redundancy expenses (\$6.8 million).

2.1.5

Proposed Efficiency

Sydney Water has outlined a range of efficiency measures that offset the operating expenditure increases which were identified in the previous section. These efficiency measures are outlined below including some measures that were already identified in the previous section on net operating expenditure savings:

- Reduced water patrols - \$12.3 million over 4 years.
- Renewable energy generation - \$11.9 million over 4 years in the form of reduced electricity purchases.
- Workplace accommodation program - \$8.6 million over 4 years.
- Water services workforce reforms - \$8.2 million over 4 years.
- Asset Management Division workforce realignment - \$8.1 million over 4 years.
- Other programs including 12 defined programs and other undefined programs - \$51 million in total with \$35.4 million in defined and \$15.4 million in undefined programs.

The proposed efficiency savings will be realised over the four year price path period, however about 40% will be realised in the final year of the period with only about 4% realised in the first year.

2.2

Expenditure Analysis

2.2.1

General

Sydney Water provided a number of documents detailing their performance against the current IPART Determination for the period from 2005/2006 to 2007/2008 and details of their proposed operating expenditure from 2008/2009 to 2011/2012. This includes:

- Annual Information Return/Special Information Return – as revised in file “*Sydney Water 2007 AIR and SIR (BT) – 23 October 2007*” [AIR/SIR];

- “*Folio 1.2 Performance against current Determination 2005/06 to 2007/08*” (18 September 2007) [Folio 1.2];
- presentation “*Historical Operating Expenditure 13 September 2007*” [historical opex presentation];
- “*Folio 1.1 Forecast Operating Cost Analysis (2008/09 to 2011/12)*” in file “*Folio 1.1 - Forecast Operating Expenditure.pdf*” 26 September 2007 [Folio 1.1];
- Presentation “*Future Operating Expenditure 17 September 2007*” [future opex presentation]; and
- “*Sydney Water Submission to IPART 14 September 2007*” [Submission to IPART].

There are a number of inconsistencies between the documents listed above, including differing reports of actual expenditure and the use of different categories or items of expenditure. This made our analysis of Sydney Water's performance difficult as we were required to assume comparisons between categories and line items and also assume the total operating expenditure allocated to each category or line item.

We have generally not used the figures contained in Sydney Water's Submission to IPART in our analysis and, where inconsistencies were identified in the additional supporting information provided by Sydney Water during and after our detailed interviews, we have then relied ultimately on the information presented in the revised AIR/SIR as the definitive source.

We have also, where possible, excluded the line item “Employee Provisions” from our analysis, especially in regards to the review of historical operating expenditure. This item is highly variable and its movement is generally not within the control of Sydney Water. As we understand it, the item represents a purely financial adjustment to ensure that sufficient funds are available to cover superannuation entitlements. The item changes with the value of the entitlements and sometimes requires topping up, which necessitates an operating expense or is sometimes included as a negative expense (a benefit) which presumably represents the excess value of the investment over and above the required level to cover the superannuation entitlements.

Sydney Water provided additional details as to why this item varied significantly and how it is included in proposed operating expenditure. These details are briefly summarised in the following points.

- Employee provisions includes superannuation, annual leave, long service leave and redundancy of which superannuation has the greatest variance.
- The defined benefit funds account for the majority of the variance as they are calculated based on movements in actual stakeholdings and actuarially assessed gross liability.

- Sydney Water's actual stakeholdings in the funds vary with investment earnings or losses. Earnings result in a decrease in superannuation expense while losses require additional contributions to the fund to maintain the required level of funds.
- The gross liability varies due to retrospective assessment of figures based on variable market discount rates. When the bond rates rise the gross liability is discounted to a lesser amount, hence reducing the required superannuation expense.
- Sydney Water includes all actual movements in the superannuation expense in historical figures but assumes a "normalised" expense for proposed expenditure which represents the actual payments made to the superannuation funds or the "current service cost" excluding any potential funds earnings or losses or movements in the discount rate.
- Other factors including annual leave, long service leave and redundancy payments affect this item to a lesser degree. Leave entitlements are generally stable with minor growth while redundancy payments have recently been high but have now fallen sharply.

2.2.2

Historical Expenditure

General

Sydney Water's historical operating expenditure, compared to the 2005 IPART Determination, for 2005/2006 to 2007/2008 is shown in **Table 2.3** below.

Sydney Water's overall performance during the period from 2005/2006 to 2007/2008 was reasonable with a total overspend of \$207 million or 8.7% from the 2005 IPART determination total expenditure. Sydney Water's performance was closer to their final proposed expenditure with a variation of only 5.6%. The variation from the IPART determination expenditure was mainly a result of a significant overspend of over \$406 million for water offset by a \$211 million underspend for wastewater compared to the IPART determination values.

Operating expenditure for water increased significantly in three key areas: reticulation works (\$87 million); the purchase of bulk water (\$17.5 million); and in demand management (\$10.7 million). Operating expenditure for wastewater also increased in three key areas: collection/transportation (\$66.2 million); treatment (\$50.4 million); and in customer services (\$40.2 million) however this increase was not as large as expected in the 2005 IPART Determination target.

Sydney Water has claimed a number of efficiency savings over the historical period from 2005/2006 to 2007/2008 however our brief analysis indicated that a number of the efficiencies relate solely to the cessation of various services provided rather than the provision of the same level of service at a reduced expenditure. However, we

do not have enough information on Sydney Water's historical efficiencies to make a definitive statement regarding this issue.

Section 1.5.5 of this report provides a brief insight into how Sydney Water's operational performance compares to other water agencies around Australia. We found that Sydney Water's operating costs per property have been consistently in the top four highest cost for water supply and, until 2005/2006, were in the top four highest cost for wastewater. In 2005/2006 Sydney Water's cost per property for wastewater suddenly became the lowest cost out of the water agencies reviewed.

**Table 2.3 Sydney Water Historical Operating Expenditure vs IPART
 Determination for 2005/2006 to 2007/2008 (AIR/SIR)**

(\$m 2007/2008 real)	2005/2006	2006/2007	2007/2008	Total
IPART Determination				
- Water	340.7	336.3	326.5	1,003.4
- Wastewater	299.3	302.1	304.4	905.9
- Stormwater	8.3	8.3	8.3	24.8
- Corporate	158.1	148.9	142.6	449.6
Total	806.3	795.7	781.7	2,383.7
SWC Proposed Opex				
- Water	353.9	343.8	330.0	1,027.7
- Wastewater	309.0	309.6	308.9	927.5
- Stormwater	8.3	8.5	8.5	25.2
- Corporate	167.0	157.9	149.2	474.0
Total	838.2	819.8	796.5	2,454.5
SWC Actual Opex - AIR/SIR				
- Water	405.5	468.3	535.8	1,409.6
- Wastewater	142.9	239.6	312.1	694.5
- Stormwater	8.8	6.3	8.6	23.7
- Corporate	178.4	147.3	137.3	463.0
Total	735.6	861.4	993.8	2,590.8
Performance - IPART Target	-8.8%	8.3%	27.1%	8.7%
Performance - SWC Proposed	-12.2%	5.1%	24.8%	5.6%

Source: 2005 IPART Determination Table 8.12 pg 90, AIR/SIR Table 3.5

Notes: Figures exclude recycled water and the desalination plant

Major cost drivers

The programs or line items that have had the greatest impact on operating expenditure since the start of the previous determination, that is, the period from 2004/2005 to 2007/2008, are summarised below and are discussed briefly in the following sections. The programs listed below account for just over 80% of the reported increases in operating expenditure:

- Labour (excluding employee provisions) - \$25 million increase (11.2%).
- Hire & contract services - \$29 million increase (21.2%).
- Bulk water purchases - \$33 million increase (25.0%).
- Energy - \$16 million increase (68.0%).
- Other - \$14 million increase (13.6%).
- Employee provisions – major variations over the period from \$196 million (423.9%) decreases to \$100 million (185.5%) increases.

Labour (excluding employee provisions)

Expenditure for this item is relatively steady over the period from 2005/2006 to 2007/2008. There is, however, a large increase in the expenditure between 2006/2007 and 2007/2008 of around \$19.2 million (8.5%) (derived from Table 3.2 of the AIR/SIR). Sydney Water explained, on page 3 of Folio 1.2, that this increase was related to “an expected increase in the FTEs [full time equivalents]... which is due to:

- Human resources taking more graduates and redeployees;
- Monitoring services division needs expand [sic] as testing grows;
- IT has more positions required with growth in work and filling unfilled vacancies;
- Sustainability is filling recycled water positions; and
- Generally filling of unfilled vacancies and anticipated lower vacancies due to turnover (in Treatment Operations).”

Sydney Water provided specific details, on page 4 of Folio 1.2, of FTE movements over the period from 2003/2004 to 2007/2008 indicating that the increase in FTEs from 2006/2007 to 2007/2008 amounted to 117.2 additional FTEs. If we attribute the net increase in operating expenditure of \$19.2 million to this increase in FTEs, then by simple assumption, we calculate that the cost per additional FTE is approximately \$164,000. We are of the opinion that this cost per FTE is quite high and as such we assume that there must be additional items included in the \$19.2 million increase in operating expenditure other than simply “an expected increase in FTEs”.

Using the information provided by Sydney Water we can calculate the approximate operating expenditure per FTE for 2007/2008 as being the \$245.3 million allocated divided by 3,261 FTEs which gives an average of just over \$75,000 per FTE. This average cost per FTE is much more in line with expectations.

Sydney Water provided additional information on the breakdown of this increase in operating expenditure in the “Labour (excluding employee provisions)” line item, which is summarised in the following points.

- Sydney Water clarified that the reported average FTE for 2006/2007 was a median rather than an average and that the actual average FTE was 3,130 resulting in a net increase of 131 FTEs from 2006/2007 to 2007/2008.
- Sydney Water provided a breakdown of the movement in labour (excluding superannuation) from 2006/2007 to 2007/2008 as shown in **Table 2.4** below.
- Sydney Water provided additional details on the average cost per employee or FTE in 2006/2007 and 2007/2008 and these are shown below in **Table 2.5**.

Table 2.4 Sydney Water Reported Variance 2006/2007 to 2007/2008 in Labour Expenditure (excluding superannuation)

(\$m 2007/2008 real)	Variance 06/07 to 07/08
Gross salaries incl overtime & allowances	+ \$17.7
Day Labour Capitalised (expense)	- \$5.5
Dust Diseases Levy	+ \$0.4
Payroll Tax	- \$4.6
Annual Leave & LSL	+ \$2.3
Workers Comp Premium & Provisions	+ \$9.2
Agency Hire	- \$2.3
Total (ref page 3, folio 1.2)	+\$17.4

Note: Escalation of 06-07 expenditure was at 3.4%.

Table 2.5 Sydney Water Reported Average Cost for FTE for 2006/2007 and 2007/2008

	2006/07	2007/08
Gross employee cost (\$m 2007/2008 real)	\$272.0	\$284.7
FTE	3,130	3,261
Cost per FTE (\$ 2007/2008 real)	\$86,915	\$87,319
Increase		+ 0.5%

Note: Gross employee cost includes salaries (prior to any capitalisation), allowances, penalties, overtime, dust diseases levy and payroll tax. Figures factored to \$ 2007/2008 real from original nominal values. Nominal percentage increase in cost per FTE was +3.9%

The figures shown in **Table 2.4** do not, however, correlate to the variances identified from Table 3.2 in the AIR/SIR, as reported previously, that is **Table 2.4** above suggests a net increase of \$17.4 million whereas Table 3.2 in the AIR/SIR suggests a \$19.2 million increase. We are unable to reconcile the figures provided by Sydney Water with the information provided in the AIR/SIR.

We note that even if we were to take Sydney Water's figures in Table 2.4, the increase of \$17.4 million in expenditure for the 131 additional FTEs still represents an average cost per FTE of over \$132,000, about 75% higher than our original estimate of \$75,000 derived above, and 52% higher than Sydney Water's reported cost of approximately \$87,000 per FTE as shown in **Table 2.5**.

We note that page 3 of Folio 1.2 indicates that the trend in operating expenditure for the line item "labour (excluding superannuation and redundancies)" over 2004/2005 to 2007/2008 is a net decrease of almost \$18 million or just over 6%. This is almost exactly the opposite of the net increase in operating expenditure of \$24.7 million or just over 10% as derived from Table 3.2 of the AIR/SIR for the same period.

Sydney Water provided an explanation as to why there was a significant difference in the operating expenditure between the line item "Labour (excluding employee provisions)" in the AIR/SIR and the line item "Labour (excluding superannuation and redundancies)" in Folio 1.2. Sydney Water indicated that:

- *"the significant difference is due to expenditure being adjusted to remove the impact of actuarial and earnings movements of defined benefit superannuation schemes"* and that *"this is noted in the Overview of the Folio (page [1])"*.
- the breakdown of the Labour item to reconcile the differences in the Labour figures and this breakdown is presented in **Table 2.6**.

The information provided by Sydney Water, however, appears to be inconsistent with the information previously reported. The information presented in the breakdown of total regulated opex on page 1 of Folio 1.2 includes separate line items for Labour, Superannuation and Redundancies. The reported text on page 3 of Folio 1.2 under section 2.1 Major Cost Drivers, indicates a number of times that the Labour item excludes superannuation and redundancies. Finally, the information presented in Table 3.2 of the AIR/SIR indicates that the Labour item excludes employee provisions, which we have assumed to mean superannuation, annual and long service leave and redundancy provisions.

Table 2.6 Sydney Water's Reported Breakdown of Labour 2004/2005 to 2007/2008

(\$m 2007/2008 nominal)	2004/05	2005/06	2006/07	2007/08
Labour (incl. Provisions) in Folio	258.0	242.3	239.7	263.7
Add Superannuation (normalised) in Folio	22.3	20.8	19.4	16.2
Add Redundancies in Folio	14.2	21.3	37.0	7.9
Add Minor Provisions in "Other Expenditure"				3.8
Remove Normalisation of Superannuation	(49.0)	(213.5)	(129.7)	(0.0)
Total Labour (incl. all Provisions) in Folio	245.3	70.9	166.4	291.6

AIR/SIR Labour	202.8	211.7	218.7	245.3
Add AIR/SIR Employee Provisions	42.5	-140.8	-52.3	46.3
Total Labour (incl. all Provisions) in AIR/SIR	245.3	70.9	166.4	291.6

We were also unable to reconcile the figures provided in **Table 2.6** with any numbers in the AIR/SIR, however, we were able to reconcile the first three rows of figures back to the total regulated opex breakdown table on page 1 of Folio 1.2.

These inconsistencies in the reporting make it difficult to assess the historical operating expenditure, however, we note that this does not necessarily mean that Sydney Water's expenditure is inefficient; it is just very poorly reported.

We note that Sydney Water has highlighted, on page 3 of Folio 1.2, a number of efficiency measures that have resulted in the claimed reductions in labour costs including:

- Divisional restructures including staff reductions;
- Closure of customer service centres;
- Reduction in overtime costs;
- Introduction of flexible shift patterns within the Water Services Division; and
- Voluntary Separation Offer (VSO) Program within Water Services, reducing the number of employees working under long-term medical restrictions.

Sydney Water's evidence, as provided in Folio 1.2, demonstrates the effect of these efficiency reductions in the claimed \$18 million reduction in the operating expenditure for this item. However, the effect of these efficiency measures is definitely not seen in the operating expenditure presented in the AIR/SIR where the expenditure actually increases by \$19.2 million over the same period. If we assume that the efficiency measures were implemented, then this implies that the

increase in operating expenditure would be much greater than \$19.2 million and was reduced to \$19.2 million as a result of the efficiency measures. There are obviously some major issues in the presentation of these operating expenditure items that need to be resolved.

Hire & contract services

Sydney Water state that this item is one of the key areas of expenditure and that expenditure has increased due to increases in critical infrastructure maintenance services under Asset Management operating projects. The total increase in operating expenditure from 2004/2005 to 2007/2008 was \$29 million (21.2%) with the increases occurring almost equally in 2005/2006 and 2006/2007.

The increases shown in the AIR/SIR are again quite different to the information provided by Sydney Water in Folio 1.2, with the total increase of \$21.9 million and the operating expenditure for each year being between 2.1% and 9.3% less in the Folio than in the AIR/SIR.

Sydney Water has indicated that they have achieved a number of efficiency savings in the areas of:

- Consolidated long term contracts for fire protection and waste removal; and
- Creation of a number of maintenance and renewals alliance contracts including the water mains alliance and the mechanical / electrical maintenance and renewals alliance.

Bulk water purchases

The purchase of bulk raw water from the Sydney Catchment Authority makes up a large component of Sydney Water's operating expenditure and over the period from 2004/2005 to 2007/2008, the expenditure on bulk water purchases has increased by \$33 million or about 25%.

The purchase of bulk water is based on a Bulk Water Supply Agreement between Sydney Water and the Sydney Catchment Authority and is understood to be based on the volume of water supplied to Sydney Water's water treatment plants. An investigation of the trends in bulk water purchases indicates that the volume purchased by Sydney Water has decreased by about 22.1GL or about 4.25% from 2004/2005 to 2007/2008. We would expect that this reduction may have some material impact on the bulk water costs and Sydney Water provided a similar comment in their historical opex presentation.

Our estimate of the changes in the bulk water price charged by the Sydney Catchment Authority, based on the purchased volumes and operating expenditure information supplied in the AIR/SIR, indicates that the price of water has increased by \$130 per megalitre or almost 52% over the period from 2004/2005 to 2007/2008 with over half of this increase occurring between 2006/2007 and 2007/2008.

Energy

Sydney Water has recently renewed its electricity supply contract and has seen an increase of \$15 million or almost 65% in costs. Previously, Sydney Water had been on a long term (10 year) contract with a highly discounted cost rate; however the end of the contract has exposed Sydney Water to the current market rates.

The magnitude of the increase has been reported differently in the three Sydney Water sources reviewed. In Sydney Water's Submission to IPART, the magnitude of the increase was reported as \$6.5 million or a 75% increase. In the folio of evidence provided, Folio 1.2, the reported increase was \$17.5 million or 75%.

The AIR/SIR indicates that the total operating expenditure of \$39.1 million for energy is applied across the business functions approximately in the following manner:

- Water - \$13.7 million (35% of total);
- Wastewater - \$23.5 million (60% of total); and
- Corporate - \$2.0 million (5% of total).

Sydney Water indicated that they had sought the services of a specialist energy broker / consultant to identify a new energy contract, negotiate with suppliers and provide advice on a renewable energy program to offset some of Sydney Water's energy needs. The renewed contract is for a period of two years, after which they intend to negotiate a new contract.

Other

We note that the "Other" category represents a total of \$114 million or 11.5% of the total operating expenditure making this category the fourth largest operating expenditure category. However, Figure 3-1 on page 15 of the Sydney Water Submission to IPART presents a very different story with the "Other" category representing only \$9 million or 0.9% of the total operating expenditure for 2007/2008. The Submission to IPART, however, includes categories such as property, administration, transport and data management that are not included in the AIR/SIR and by inference may explain the large "Other" category expenditure.

Labour (employee provisions)

This item is highly variable and we understand that this category covers superannuation and redundancies as listed in the folio of evidence supplied by Sydney Water (Folio 1.2). Expenditure in this category varies from a low of - \$149.7 million in 2005/2006 to a high of \$46.3 million in 2007/2008, however the net change in this item from 2004/2005 (the start of the previous determination) to 2007/2008 is less than \$0.1 million (0.1%). Sydney Water provided an explanation of this item as outlined in **Section 2.2.1**.

Major division performance

Sydney Water has provided specific details, on pages 6-32 of Folio 1.2, on the performance of the key divisions within Sydney Water and these are briefly summarised in the following sections.

Asset Management Division

The Asset Management Division plays a critical role in Sydney Water's operation as they are the asset owners and therefore ultimately responsible for the operation and maintenance of the assets. Total operating expenditure for the division is reported, on page 7 of Folio 1.2, to have increased approximately \$79.7 million (23.7%) from 2004/2005 to 2007/2008 with \$48.9 million, or over 60%, of the increase occurring between 2005/2006 and 2006/2007.

The division has overspent its original expenditure targets over the past two years in the amount of \$34.0 million, however large scale budget reallocations to the division have resulted in an underspend of the modified budgets in the amount of \$39.4 million.

Sydney Water provided a summary table reconciling the transfers or budget reallocations between the divisions. Sydney Water also provided a written response supported by detailed spreadsheets showing the movement of budgeted expenditure between the Asset Management division and the other divisions each year in 2005/2006, 2006/2007 and 2007/2008. With the information provided, we were generally able to track the budget reallocations for the Asset Management division as reported in Folio 1.2.

Sydney Water provided evidence of the increases in each year on page 8 of Folio 1.2, and this is set out briefly in the points below. We have cross-checked the stated increases against those identified in the AIR/SIR to ensure that the change is accounted and also the explanations provided during the interviews and in the Historical Opex presentation. We recognise that the changes listed in the AIR/SIR are for the whole of Sydney Water rather than only specific divisions, however it is a useful exercise to check that the changes reported for each division can be accounted for within the changes reported in the AIR/SIR.

We have then provided comments under each point below.

- 2004/2005 – 2005/2006 – increase of \$29.8 million (37.3%) resulting from increases in mechanical / electrical maintenance costs (\$11.8 million); increase in critical infrastructure maintenance (\$5.0 million); increase in DECC licence fees (\$5.9 million); increase in bulk water costs from the Sydney Catchment Authority and the Water Filtration Plants (\$15.0 million); and reduction in work-in-progress write offs and prior year adjustments (\$6.0 million).

Comments

Sydney Water indicated in the Historical Opex presentation that the increase in mechanical / electrical maintenance costs was due to the award of an alliance contract. With this item, we would expect to see a corresponding increase of at least \$11.8 million in the hire and contract services item under core business activities in the AIR/SIR. The expected increase is reflected in the AIR/SIR which lists an increase of just over \$15 million for this period, meaning that the increase in expenditure due to the alliance contract represents almost 80% of the stated increase in the AIR/SIR.

Sydney Water stated that there was a \$5.9 million increase in DECC licence fees, however this does not reconcile with the information presented in the AIR/SIR. The AIR/SIR indicates that, in fact, there was a reduction in the Licence fees item of approximately \$3.3 million between 2004/2005 and 2005/2006. This is generally supported by explanations provided on page 6 of Folio 1.2 which details reductions in licence fees (albeit for reductions of almost \$5.7 million in 2005/2006 rather than \$3.3 million as stated in the AIR/SIR).

Sydney Water explained the differences between the licence fee variances reported above and the variances reported in the AIR/SIR and indicated that the reported increase in licence fees of \$5.9 million occurred only in the Asset Management division. In the Treatment Operations division there was a much larger reduction in licence fees of \$9.2 million which on balance, represents the \$3.3 million reduction as reported.

Sydney Water has highlighted an increase of \$15.0 million in bulk water costs for this period and we note that this increase is reflected in the total increases in the bulk water purchases and BOO costs in the AIR/SIR for the same period.

Sydney Water provided further details of how the reduction in work-in-progress write offs increase operating expenditure. Sydney Water indicated that work in progress write offs occur when a decision is made, perhaps based on a more detailed investigation, not to complete a previously approved project. Work completed on the project to date is then written off as an expense on the profit and loss statement and reported. Sydney Water further

stated that reductions in work in progress write offs do not reduce operating expenditure since the reductions offset increases in other areas.

We note that there is a discrepancy of \$1.9 million between the stated increase in operating expenditure of \$29.8 million and the sum of the component increases (\$31.7 million) detailed here. We requested Sydney Water identify the discrepancy or categorise it as “other” increases. Sydney Water responded to our query indicating that the discrepancy is a result of increased capitalisation of labour costs leading to reduced operating expenditure.

- 2005/2006 – 2006/2007 – net increase of \$48.9 million resulting from increase in critical infrastructure maintenance (\$19.7 million); increase in DECC licence fees (\$2.8 million); increase in chemicals for sewer dosing and odour control (\$1.6 million); increase in bulk water costs from SCA and Water Filtration Plants (\$9.0 million); and increase in work-in-progress write offs and prior year adjustments (\$14.0 million).

Comments

The increase in critical infrastructure maintenance is a large component of the total increase in operating expenditure this period (over 40%) and, when combined with the previous years' increase of \$5.0 million, this represents a significant investment increase of almost \$25 million, making this individual item equivalent to the third highest increase in operating expenditure for the core business activities.

Sydney Water provided a breakdown of expenditure increase in critical infrastructure maintenance showing, for example, whether the increase is made up of FTE increases, higher workloads, better identification of critical infrastructure, increased focus on this item from previous years, etc. Sydney Water's response is summarised in the following points.

The critical infrastructure maintenance program is part of the Operating Projects Program which is itself a significant component of the Asset Management Division's total operating expenditure. The projects in this program are non-recurrent or periodic in nature, are not included in annual maintenance plans, and do not meet capitalisation criteria. Projects are included on this list on the basis of a risk based assessment supported by business cases and specific condition assessments. The program was introduced in 2004, however the expenditure allowed in the determination was reduced requiring a focus on critical risk projects in 2005/2006 and a significant ramp up of expenditure in 2007/2008 to cover deferred projects and new projects identified from ongoing risk assessments. Sydney Water stated that they expect the expenditure on this program to stabilise at around the level of the 2007/2008 expenditure.

We note that there is an increase in the Licence fees item in the AIR/SIR that reconciles with the DECC licence fees increase stated here. We also note, however, that this stated increase is the opposite of the information presented on page 6 of Folio 1.2 which reports a \$2.8 million reduction in licence fees. We requested that Sydney Water explain the differences between the information above and the information in the AIR/SIR. Sydney Water provided a response to our query and we have discussed this in our comments on the 2004/2005 to 2005/2006 expenditure variances.

We note that there is an appropriate increase in the materials cost item listed in the AIR/SIR that would reasonably cover the increase in chemical costs listed in the Folio. We also note that this increase is consistent with the increase stated on page 6 of Folio 1.2, albeit an increase of \$1.6 million over two years instead of just one. However, we would expect that the purchase of chemicals would be undertaken by one of the other divisions such as the Water Services or Treatment Operations division.

Sydney Water explained the uses of the chemicals purchased and why these tasks aren't performed by other, potentially more suited divisions indicating that the chemicals expenditure is required to control gas and odours in large sewers and as the Asset Management division is responsible for the management and operation of these sewers, it is appropriate for the division to incur this expenditure.

We note that there is an increase in bulk water purchase costs of \$10.1 million reported in the AIR/SIR but a decrease in the BOO costs of \$1.4 million leaving a net increase of \$8.7 million, which is similar enough to the stated increase here.

When the reduction in work-in-progress write offs is combined with the expenditure for this item in the previous year, it now totals \$20 million. Sydney Water provided details of how the reduction in work-in-progress write offs increase operating expenditure.

We note that there is a discrepancy of \$1.8 million between the stated increase in operating expenditure of \$48.9 million and the sum of the component increases detailed here. Sydney Water indicated that the expenditure relates to minor increases in a number of items including property, transport, materials and some additional minor contract costs.

- 2006/2007 – 2007/2008 – net increase of \$1.1 million resulting from increased energy contract rates (\$9.0 million); increase in bulk water costs from SCA and Water Filtration Plants (\$9.0 million); increase in DECC licence fees (\$2.0 million); and reduction in work-in-progress write offs and prior year adjustments (\$19.0 million).

Comments

We note that there is an appropriate increase in energy costs in the AIR/SIR that covers the increase stated here, however page 6 of Folio 1.2 indicates that the magnitude of the change is lower at \$6.3 million and it is unclear whether this reported change is an increase or decrease in expenditure.

Sydney Water has stated that the bulk water costs from the SCA and the Water Filtration Plants have increased again this year by \$9.0 million. Our cross-check of the AIR/SIR indicates that the reported increase in bulk water purchases is just over \$7.4 million and the increase in BOO costs is just over \$1.4 million giving a total increase of \$8.9 million across these two items.

Sydney Water has reported a further increase in the DECC licence fees of \$2 million and our cross-checking has indicated that this increase is reflected in the AIR/SIR. However, the information provided on page 6 of Folio 1.2 states that there was a reduction in licence fees of \$2.7 million over the same period. Sydney Water explained the differences between the information above and the information in the AIR/SIR in relation to licence fee variances in 2005/2006 indicating that the \$2 million increase relates to variances within the Asset Management Division only whereas the reported variances on page 6 of Folio 1.2 relate to comparisons against the target expenditure allowed in the current IPART determination. In addition, Sydney Water clarified that the licence fee variations reported in the AIR/SIR relate to the whole of Sydney Water not just the Asset Management division.

Asset Solutions Division

Asset Solutions is responsible for the design, project management and delivery of major infrastructure projects for Sydney Water including strategic management of procurement and major contracts. Most of the work undertaken by the division is capital related, however a number of capital efficiency programs have been implemented with resulting operating expenditure.

Historically, the division has underspent its expenditure targets by around 25% to 35%. Some budget reallocation from the division's target expenditure has had the effect of improving these performance figures. Sydney Water provided a summary table reconciling the transfers or budget reallocations between the divisions together with explanations and detailed supporting spreadsheets outlining the budget transfers between divisions.

Total operating expenditure for Asset Solutions over 2004/2005 to 2007/2008 is only \$17.1 million with a net reduction over the period of \$1.1 million or 20.4%.

Changes in operating expenditure were mainly achieved by labour reductions, reductions in non-regulated sales, and changes in operational contractor costs.

Customer and Community Relations Division

This division is the key interface between Sydney Water and its customers with the division operating under various business units including customer contact, customer service, ancillary services, urban growth, income collection and commercial and industrial customer services. The division also undertakes water restrictions monitoring and compliance activities; water conservation and recycling services and advice; and communications and marketing for major projects such as the SewerFix program and the desalination project.

Total operating expenditure for the division in 2007/2008 was \$117.7 million with the division's performance exceeding the targets originally set in the amount of almost \$50 million; with over half of this occurring or expected to occur in 2007/2008. Sydney Water provided reasons for variance from the original targets on page 11 of Folio 1.2. These include:

- efficiency gains in customer service operations;
- predicted end of water restrictions in 2006/2007 not occurring resulting in continuing costs;
- costs associated with water conservation and recycling projects directed by Government under the Metropolitan Water Plan;
- communications and marketing programs related to the Metropolitan Water Plan; and
- costs associated with the transfer of WasteSafe from Australian Water Technologies into the division and the growth in services provided that were not included in the division's targets.

Minor efficiency savings totalling just over \$4.3 million were achieved up to the end of 2006/2007.

Total operating expenditure for the division has increased by about \$24.8 million over the three years from 2004/2005 to 2007/2008 with the increases relatively well spread across the period. The major component of the increase in operating expenditure was the water conservation and recycling programs implemented under the Metropolitan Water Plan. Operating expenditure increases for this item appear to total around \$23.4 million or around 95% of the total increases over the three years. Other increases in expenditure of around \$9.6 million were offset by expenditure savings totalling about \$7.6 million.

Treatment Operations Division

The primary role of this division is to operate the sewage, recycled water and drinking water treatment plants and manage issues including drinking water disinfection plants, corrosion dosing for the wastewater system and the beneficial reuse and disposal of treatment plant residuals.

The operating expenditure targets for the division are relatively steady over the period from 2004/2005 to 2007/2008 and the actual operating expenditure has also remained relatively steady, although at a somewhat lower level than the target expenditure. Average target expenditure for the period was around \$106.5 million while average actual expenditure was around \$75.4 million.

The major reason for the variation was the reallocation of budgeted expenditure from this division to the Asset Management division due to a transfer of non-core responsibilities. Sydney Water provided a summary table reconciling the transfers or budget reallocations between the divisions together with explanations and detailed supporting spreadsheets.

The division has realised a number of efficiencies in reducing operating expenditure, including:

- reduced staff numbers (17 FTE or 6%) with the realignment of core responsibilities and the transfer of non-core responsibilities to the Asset Management division;
- staff reductions from three Sewage and one Water Filtration Treatment Plant closures with two additional plants to close in 2007/2008;
- major plant upgrades resulting in more reliable operation and lower staffing level requirements;
- reduction in overtime costs and shift penalty costs due to operational changes and improvements; and
- further sub-contracting of biosolids transport and beneficial use.

Historical expenditure is relatively steady with only one major decrease in expenditure from 2004/2005 to 2005/2006 of \$17.6 million which was predominantly a result of the transfer of non-core responsibilities to the Asset Management division. The division was significantly affected with the increase in energy costs related to the new energy supply contract as it accounts for about 52% of the total Sydney Water electricity costs. The resulting increase in expenditure of \$7.3 million in 2007/2008 was, however, offset by expenditure reductions in biosolids transportation costs in the same year of \$4.5 million, which were realised after the commissioning of new sludge digesters.

Monitoring Services Division

The Monitoring Services division's primary role is to deliver water, wastewater (environmental) and hydrometric monitoring services to Sydney Water while they also provide some services, under contract, to Sydney Catchment Authority (Note: this would constitute an unregulated activity).

The division's target operating expenditure is relatively steady with a focus on gradual reductions in expenditure achieved by increased resource utilisation and improved use of technology to improve sampling and reporting techniques. Total operating expenditure targets have averaged around \$28.0 million with a decreasing trend while actual expenditure has averaged around \$22.6 million with an increasing trend. While the variance between actual and target operating expenditure has been reducing, some budget reallocation to other divisions has reduced the target expenditure levels.

Sydney Water provided a summary table reconciling the transfers or budget reallocations between the divisions together with explanations and detailed supporting spreadsheets.

Sydney Water has identified a number of efficiency measures implemented by the division over the period from 2004/2005 to 2007/2008 including:

- consolidation of all analytical work for Sydney Water into this division with only low volume specialist work being sought externally;
- increased third party activity to market the skills and experience of the staff and increase utilisation;
- development of a Consumables Efficiency Plan to reduce consumables per sample by 20% over 2005/2006 costs; and
- vehicle operation and lease optimisation by returning under-utilised vehicles, standardising vehicle types and extending leasing terms.

Historical expenditure is very stable over the period with a step jump in operating expenditure of \$2.8 million (19%) resulting from changes to the Asset Management division monitoring requirements and occupational health and safety issues. Other expenditure increases are less than \$1.5 million and are considered appropriate.

Water Services Division

The Water Services division provides construction and maintenance services for water, wastewater, recycled water and stormwater infrastructure for Sydney Water.

The division has the second largest target operating expenditure, after accounting for the budget reallocations to the Asset Management division which make it the largest division, with an average target operating expenditure of \$138.9 million and a decreasing trend. Historical actual operating expenditure averages \$145.8 million with a variable but increasing trend.

The variance between target and actual operating expenditure is explained on page 16 of Folio 1.2 as being related to pressures to meet mandated response times for water main and sewage pipe failures, unplanned/unbudgeted costs in operating expenses and additional delivery of contract work.

The division has implemented a number of efficiency initiatives including:

- the introduction of flexible shift patterns to improve responsiveness;
- the optimal use of contractors;
- the implementation of health and safety improvements to reduce insurance premiums; and
- a review of operational staff fitness to perform duties.

Sydney Water indicated, on page 17 of Folio 1.2, that these efficiency measures had enabled substantial reductions in staff numbers from 998 in 2004/2005 to 925 in 2007/2008. However, these staff numbers do not match the figures stated on page 4 of Folio 1.2, showing the year average actual FTEs per division, which reports that staff in the Water Services division reduced from 918.7 in 2004/2005 to 865.7 in 2007/2008. This discrepancy may be explained if the figures reported on page 17 are simply total staff numbers rather than FTEs. Sydney Water clarified the differences between the staff numbers of page 17 of Folio 1.2 and page 4 of Folio 1.2 indicating that the staff numbers reported on page 17 of Folio 1.2 include agency hire employees and apprentices whereas the FTE numbers on page 4 of Folio 1.2 do not.

Historical expenditure for this division has been relatively steady over the period from 2004/2005 to 2007/2008 with a net increase in expenditure of only 4.9 million, or 3.6%, compared to the average yearly expenditure of around \$138.2 million.

We note that Sydney Water reports, on page 17 of Folio 1.2, that in 2005/2006 there were substantial cost increases in labour of \$2.5 million, however this seems to contradict the previous statement regarding substantial staff reductions, from 998 staff to 925 staff, especially as the greatest staff reductions, in fact 46 staff or 63% of the total reductions, occurred in 2005/2006. This is a major discrepancy, since the reduction of 46 staff at an average rate of \$75,000 per staff member is a \$3.5 million decrease, whereas Sydney Water is reporting a \$2.5 million increase in labour costs.

Sydney Water explained the discrepancy in reporting of changes to operating expenditure with regards to staff numbers and labour costs and we have summarised their response in the following points.

Sydney Water reported that there was a typographical error in the table of staff numbers for 2005/2006 reported on page 17 of Folio 1.2. The actual figure should be 962, which represents a reduction of 36 staff from 2004/2005 rather than 46. In addition, Sydney Water indicated that the majority of staff reductions occurred towards the end of the year and that the actual average number of staff over the 2005/2006 year was 973. This represents a FTE reduction of only 25 from the 2004/2005 figure.

Sydney Water also reported that wages and salaries rose in real terms by 1.4% above the CPI, however this increase does not appear to be sufficient to explain the net increase of \$2.5 million in labour given a reduction in staff numbers of 25 FTE.

Sustainability Division

The Sustainability division seeks to strategically position Sydney Water as a sustainable business and it oversees programs such as the Government directed Water Savings Fund and the Climate Change Fund.

Sydney Water has reported the historical performance of the division in achieving their targets on page 18 of Folio 1.2. The information reported indicates that there was a significant overspend above the division target for each year from 2005/2006 to 2007/2008 and that this was the result of additional contributions to the DECC Water Savings Fund and the Climate Change Fund. The reported overspend was \$34.5 million in 2005/2006, \$45.4 million in 2006/2007 and \$34.9 million in 2007/2008.

The information presented on page 18 of Folio 1.2, however, indicates that “the current IPART Determination did include a net \$15.0 million per annum”. Furthermore Sydney Water reports that “The original direction was for a \$30 million contribution per annum from 2005/06 to 2007/08. Actual contributions to date have been: \$32.5 million in 2005/06 and \$42.5 million in 2006/07.” In further discussions on this issue it was revealed that the original contribution scheme to the Water Savings Fund would have a \$30 million payment out of operating expenditure that would be offset by \$15 million repayment to revenue resulting in a net \$15 million contribution to the Fund. The range of information provided confuses this issue significantly, and even more so when on page 19 of Folio 1.2, Sydney Water reports on contributions to the Water Savings Fund of \$34.6 million in 2005/2006, \$43.9 million in 2006/2007, and \$30.0 million in 2007/2008.

We have reviewed this issue and we present the following summary of our findings on this issue.

- We accept Sydney Water's statement that the Government directed contributions to the Water Savings Fund were declared after the IPART Determination.
- We also accept the statement that the original IPART Determination did include contributions to the Water Savings Fund of \$30 million per year, with a corresponding \$15 million part repayment provided as revenue.
- We accept Sydney Water's statement that actual contributions to date to the Fund have been larger than expected at \$34.5 million in 2005/2006 and \$43.9 million in 2006/2007. We note however that these figures are as confirmed in the AIR/SIR and on page 19 of Folio 1.2. We also note that these figures are not the same as the figures reported on page 18 of Folio 1.2 nor are they the same as the figures reported in the Historical Opex presentation.
- We therefore summarise that the actual increase in contributions to the Water Savings Fund is only \$2.5 million in 2005/2006 and \$12.5 million in 2006/2007 above what was already in the IPART Determination.
- We note therefore that Sydney Water's target expenditure values should have included the \$30 million allowed in the current IPART Determination.

Sydney Water provided clarifying information regarding the Water Savings Fund allocations and whether the allocations were previously allowed for or not, and also the actual expenditure into the Funds. Sydney Water indicated that the original, net \$15 million contribution was allowed for in the current determination, however it was allocated as a Corporate Level Adjustment rather than directly to the Sustainability division. Sydney Water further reported that the expenditure allowances for the fund were reported in different sources as nominal and real figures, explaining some of the differences identified in our analysis.

Sydney Water has reported, on page 19 of Folio 1.2, that the historical expenditure, excluding the contributions to the Water Savings Fund and Climate Change Fund, is relatively steady with a net overall decrease of about \$0.3 million or 2.3%. With the Fund contributions taken into account the changes in the historical expenditure are quite different. However as discussed above, we have assumed that the current IPART Determination did in fact include an allowance of \$30 million each year. For clarity, we have summarised this information into **Table 2.7** below.

Table 2.7 shows that the Sustainability division's performance excluding funds contributions resulted in a net decrease of \$0.3 million or 2.3%, as previously reported. Including contributions in the targets and the performance, the division's performance resulted in a net increase of \$29.7 million or 126.7%.

Table 2.7 Sustainability Division Operating Expenditure Performance – including and excluding Fund Contributions – 2004/2005 to 2007/2008

Line Item	Operating Expenditure			
	2004/2005	2005/2006	2006/2007	2007/2008
Sustainability division - target		9.9	8.3	7.9
Sustainability division - performance	13.1	9.9	9.7	12.8
Variance (\$) - base		0.0	1.4	4.9
Variance (%) - base		-0.3%	17.0%	61.4%
Sustainability division - target + (WSF & CCF)		41.8	39.3	37.9
Sustainability division - performance + (WSF & CCF)	13.1	44.4	53.7	42.8
Variance (\$) - inc WSF & CCF		2.6	14.3	4.9
Variance (%) - inc WSF & CCF		6.3%	36.5%	12.8%

Notes:

- target and performance + (WSF & CCF) row data sourced from variance explanation table on page 18 of Folio 1.2
- performance row data derived by subtracting reported actual contributions to funds for 2005/2006 and 2006/2007, as reported in the AIR/SIR, from the performance + (WSF & CCF) row data
- target + (WSF & CCF) row data calculated by adding nominal \$30 million contribution (factored to real \$ 2007/2008) to division target
- performance + (WSF & CCF) row data reported in variance table on page 18 of Folio 1.2

Performance against the targets indicates that, excluding the funds contributions, there is a significantly increasing overspend trend in the division with a forecast 61.4% overspend in base expenditure from 2006/2007 to 2007/2008, however the expenditure amounts are relatively small. Including funds contributions, the performance is again characterised by overspend in 2005/2006 and 2006/2007.

Corporate Services Division (excluding IT)

The Corporate Services Division comprises:

- Shared Services – key business services and administrative functions;
- Risk – enterprise risk framework management and major project risks;
- Insurance – procurement and claims management; and,
- IT – (IT is covered separately).

The division has identified and delivered a number of key efficiency measures over the current determination period which included labour savings through staff reductions, centralisation of reporting lines, and a substantial saving in insurance premiums with a reduction of \$14.2 million from 2003/2004 and a reduction in brokerage fees.

Historical performance against targets for the division have generally been good with a typical variance of about just over \$0.8 million or about 7%. The performance in 2006/2007 appears to have been an anomaly with the variance exceeding \$1.5 million or 13%.

The division's historical operating expenditure has generally remained steady with a slightly decreasing trend and a net reduction in expenditure of \$1.9 million or 13.5% from 2004/2005 to 2007/2008. Key changes to the expenditure relate to one-off contractor costs, labour cost associated with consolidating accounting positions, and implementation of business improvement and efficiency reviews.

IT Group

Sydney Water completed an IT Strategy in 2006 to define the role of the IT group within the Corporate Services division and within Sydney Water as a whole. The strategy identified the need for significant investments in expenditure and labour and improvement of IT governance and alignment with Sydney Water's business planning.

Historical performance against the group's targets is representative of the outcomes and implementation of the IT strategy with a large under-spend of \$2.9 million in 2005/2006, very minor over-spend in 2006/2007 and a major over-spend of \$3.2 million in 2007/2008. The strategy was developed after the current determination and is the primary variance explaining the group's performance.

The group has identified and implemented a number of efficiency programs to reduce costs including:

- ongoing implementation of desktop leasing contract which has been saving \$1.5 million each year;
- consolidation of Wide Area Network reducing costs for infrastructure purchase, support and disaster recovery; and,
- upgrades to procurement and payroll software supporting business efficiency in the Shared Services group.

Historical operating expenditure shows a generally increasing trend reflecting the new investment identified in the IT strategy. Sydney Water has reported, on page 21 of Folio 1.2, that historical expenditure has had a net increase of \$3.2 million from 2004/2005 to 2007/2008 however these levels of expenditure are, on average, lower than historical levels prior to 2004/2005. Sydney Water has reported that most of the new investment in IT is sourced from the capital works program. Key changes to the operating expenditure included increased labour costs from the capability building program (program to increase labour by 46.1 FTEs by 2007/2008), increased agency hire costs during the group's restructure, increased software and managed service costs, and continued use of external resources to fill operational and project roles.

Finance and Regulatory Division

This division provides high quality financial, economic and performance analysis and reporting for all levels of management throughout Sydney Water and to external stakeholders and regulators.

Historical performance against the division's targets has been significantly affected by the Finance Reform program and other business efficiency measures implemented since the current Determination. The division's performance is characterised by increasing overspend above their targets with forecast expenditure in 2007/2008 being \$4.3 million or 56.3% above the original target for this year.

Variances in the operating expenditure were the result of a number of factors including:

- incorporation of 35 financial staff from the other divisions resulting in a \$3.3 million increase in labour costs over 2005/2006 to 2006/2007;
- higher grading of positions in the new division structure resulting in higher remuneration;
- higher numbers of senior manager positions; and
- slower than expected redundancies.

The division's historical operating expenditure has increased over the current Determination period with a net increase of \$1.8 million or 18% over 2004/2005 to 2007/2008. Key changes to expenditure include increased labour costs and external legal support.

Human Resources Division

The Human Resources division's goal is *"to build highly competent teams & individuals who are motivated, innovative, empowered & accountable so that they can achieve business objectives & at the same time enjoy their work in a safe & equitable environment."*

The division's historical performance against their targets is characterised by significant overspend against the targets. In 2007/2008, the division is forecast to overspend by \$8.8 million or over 136% of the target for this year. Sydney Water reports that this overspend is the result of consolidation within two key areas that were not included in the current Determination. These areas are:

- Redeployees – human resources related staff that originally worked under separate division's cost structures that have now been transferred to the Human Resources division. Sydney Water states, on page 25 of Folio 1.2, that the cost of these redeployees could be reconciled with equivalent reductions from the other divisions.

- Graduates – costs and control of graduates now resides with the Human Resources division even though they work for other divisions. Again Sydney Water states that this cost should be reconciled with equivalent reductions in the operating expenditure for the other divisions.

Historical operating expenditure has been increasing rapidly over the Determination period with a net increase of \$7.8 million or 105% over the period and average increases each year of around 28%. Key changes in operating expenditure for each year are described briefly below.

- 2005/2006 – creation of department to consolidate and manage entry level graduates that occurred over seven months with costs of around \$1.8 million; and transfer of Injury Management function into the division contributing almost \$1.4 million in additional operating expenditure.
- 2006/2007 – creation of a department to consolidate and manage all redeployed employees costing about \$2.0 million; and inclusion of full year effect of consolidated entry level graduates department which contributed \$1.4 million. These costs were offset by reduced external training and use of external contractors / consultants saving \$1.1 million and through reduced legal and external advertising and recruitment costs saving \$0.5 million.
- 2007/2008 – increased labour capacity cost of \$0.8 million; increase in planned intake for entry level graduates of 30 graduates costing an additional \$1.5 million; and development of a new Learning Management System which costs \$0.3 million in operational costs.

However, these key changes, which total a net \$7.8 million increase in operating expenditure, when added to the increased expenditure brought about by the two key areas discussed above, do not reconcile with the variances from the division's existing budget.

The yearly cost of the redeployees was reported as being \$1.2 million while the cost of the entry level graduate program was reported as costing a minimum of \$5 million per annum. The graduate program and redeployee program was reported as commencing in 2007/2008 (page 3 of Folio 1.2) and cross checking the reported historical increases in FTE's on page 4 of Folio 1.2 indicates that there was a 70.5 increase from 2006/2007 to 2007/2008.

Given this, the expected increase in operating expenditure would be made up of \$1.2 million (redeployee program) + \$5.0 million (min entry level program) + \$7.8 million increase as a result of the key changes discussed above. The total increase in operating expenditure is then \$14 million compared to the total variance from the division target of over \$17.7 million.

In addition, we are of the opinion that the \$5 million allowance for the entry level program is quite large. Sydney Water has reported that the increase in FTE's from 2006/2007 to 2007/2008 into the entry level program was 30 graduates. Using an average remuneration per FTE cost of \$75,000 (which is very high for a graduate level FTE) we calculate a total increase in operating expenditure of \$2.3 million rather than the minimum \$5.0 million that has been suggested. Substituting the former figure, our total increase in operating expenditure is only \$11.3 million, a difference of \$4.3 million from the reported total variance from the division target of \$17.7 million. The difference would obviously be even greater if we used a more realistic remuneration for a graduate level FTE.

Sydney Water reported that the graduate entry level program expenditure of \$5 million covers the annual intake, training and salary related costs of the program including increases to the cost base of the division. The detailed information supplied by Sydney Water related to the transfer of budgets between divisions indicates that the graduate program consolidation was expected to cost, on average, around \$3.6 million per year. Actual expenditure figures on page 26 of Folio 1.2 indicate that the entry level program has only incurred \$4.9 million over the three years against a revised budget of \$10.8 million (\$3.6 million over 3 years).

Sydney Water reported that part of the discrepancy between the reported increase in operating expenditure and reported performance against the target set in the current IPART determination related to an additional \$3.3 million in expenditure required to upgrade Sydney Water's Learning Management System which provides access to online employee skills development, training and learning.

Group Property Division

This division has responsibility for real estate and the acquisition, management and disposal of property and facilities including Sydney Water office buildings, depots, land easements, buffer lands around critical infrastructure, garages, and even childcare and catering facilities.

The division's performance against their original targets is, on average, within 1% of the operating expenditure. This is, however, taking into account the transfer of security functions that were originally undertaken by this division.

Historical operating expenditure has been relatively steady with a small increasing trend and a net overall increase of \$3.4 million or 8%. The major changes in operating expenditure was in 2007/2008 with increases in electricity supply, increased focus on environmental issues, property rental increases, increases in land tax, and increases in prior year adjustments. These increase were offset by savings including reduction in property maintenance, reductions in property sales costs and reductions in facility cleaning costs.

Workplace Accommodation Program

The Workplace Accommodation Program is responsible for managing, procuring and delivery of Sydney Water's current and future accommodation needs. At present the program is focussing on the delivery of three key sub-programs, the Parramatta Head Office, depot consolidation, and office consolidation.

The total operating expenditure of the program is relatively small at a total of \$10.5 million over the three years in the current determination period. This total expenditure is quite different to the original program targets, which proposed a total operating expenditure of only \$5.0 million.

Sydney Water reported that the program was not fully complete at the time when the current determination was implemented and consequently the proposed expenditure was not fully understood. The key variances are related to additional legal fees, lower than expected capitalisation of costs, increased consultant support in program delivery and delays to the program.

The program is only temporary and is expected to be completed in 2008/2009.

Occupational Health and Safety Division

The division provides support and advice on health and safety issues to Sydney Water including coordinating Workers Compensation insurance.

The division's performance against their operating expenditure targets has been good with performance generally around 5% of the division's targets. Actual operating expenditure in 2007/2008 was, however, about 15% higher than the target, which, Sydney Water reports, is due to higher FTE reductions assumed in the current determination.

Historical expenditure has been generally decreasing over the current determination period with a minor increase in 2007/2008 due to increased FTEs and recruitment costs due to role restructuring.

Corporate Level Adjustment

This account operates as an overhead department to manage costs that can not be allocated to specific divisions, including staff redundancy expenditure, asset impairments and write-offs, organisation insurance costs, childcare subsidies, superannuation liabilities and similar.

The division's historical performance is dominated by the highly variable superannuation liabilities adjustment which is driven by fund earnings and interest rate movements and is essentially beyond the control of Sydney Water.

Office of the Managing Director

This group covers a range of corporate functions including internal audits, corporate affairs and government relations, corporate secretary and corporate solicitor.

Historical expenditure is essentially the same over the current determination period and performance against the targets is within 7-8% of the targets. The group's 2007/2008 performance was an overspend of approximately \$0.4 million resulting from additional resourcing associated with corporate governance, corporate affairs and government relations, and internal and operational audits.

Discussion

We have reviewed Sydney Water's historical operating expenditure to assess its efficiency and suitability for use as the foundation for the analysis of proposed operating expenditure. We reviewed recent average historical expenditures while also considering major new responsibilities for Sydney Water. We also cross checked the historical operating expenditure against the average expenditure over the period from 1992/1993 to 2007/2008 to identify long term trends. Our analysis indicated that Sydney Water's historical operating expenditure over the period from 2005/2006 to 2007/2008 was approximately 11% higher than the long term average from 1992/1993 to 2004/2005 (excluding desalination and employee provisions).

Our review identified a number of discrepancies in reporting of both budgeted and actual operating expenditure and we requested Sydney Water provide additional explanations for these discrepancies. Sydney Water responded to our queries and generally provided sufficient details to explain the discrepancies. However, we noted that some of the additional information provided by Sydney Water could not immediately be reconciled to the information previously provided and to the expenditure included in the AIR/SIR. While this highlights that there are some significant issues with Sydney Water's reporting of their performance, it is not apparent to us, based on our review of the available information, that this issue indicates a systemic problem in actually meeting operating expenditure targets.

We noted that overall Sydney Water has performed reasonably well against the expenditure levels set in the 2005 IPART determination; with an overall overspend of approximately \$207 million or 8.7% from the previously approved total expenditure.

We attempted to compare this level of exceedance by Sydney Water with other water authorities around Australia, however we found that such information is rarely available publicly. The Water Plans produced by the Victorian water agencies provide some insight into their performance against operating

expenditure budgets however this information is limited and in most cases is not specifically reported.

We were able to identify that two Victorian water agencies exceeded their operating expenditure budgets by, on average, 3-12% over 2005/2006 to 2007/2008. In this context, the exceedance by Sydney Water of 8.7% is within the range of performance achieved by other agencies. In all cases, the budget exceedance was primarily a result of unplanned operating conditions such as the current drought; which required additional expenditure.

We note that the 2005 IPART determination report commented that Sydney Water was not expected to achieve their proposed operating expenditure during the determination period however Sydney Water's actual performance has exceeded both the IPART approved expenditure levels and Sydney Water's proposed expenditure. This suggests that Sydney Water does not have a capacity problem in meeting operating expenditure targets.

We were unable to determine if Sydney Water's operating expenditure program included any slippages in specific projects or programs of work as Sydney Water does not report expenditure in this manner. Reporting of historical and proposed expenditure by project or program is a powerful tool in identifying such slippages in expenditure.

While we found that there were a number of problems with the reporting of historical expenditure Our review of the historical operating expenditure over the period up to 2007/2008 led us to conclude that Sydney Water's historical operating expenditure appears to be appropriate and could be used as the basis for the analysis of Sydney Water's proposed operating expenditure.

2.2.3

Proposed Expenditure

General

Sydney Water has proposed a slight overall increase in operating expenditure over the proposed price path period from 2008/2009 to 2011/2012, however we note that the expenditure includes increases attributable, in part, to major Government requirements including the desalination plant, the Western Sydney Recycled Water Initiative Replacement Flows project, and Sydney Water's mandated contributions to the Climate Change Fund. Increases in operating expenditure are also attributable to items or projects which Sydney Water state are outside of their control, including bulk water purchases from the Sydney Catchment Authority and Water Filtration Plant tariffs.

Sydney Water's overall proposed operating expenditure is shown in Table 2.8, while the underlying operating expenditure, that is, excluding the Government mandated programs identified above, is shown in Table 2.9 following.

Table 2.8 Sydney Water Proposed Operating Expenditure 2007/2008 to 2011/2012

(\$m 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total 08-12
SWC Proposed						
- Water	535.8	533.2	552.2	546.0	537.7	2,169.1
- Wastewater	312.1	307.1	300.9	294.8	293.5	1,196.3
- Stormwater	8.6	8.4	7.6	8.1	8.0	32.0
- Corporate	137.3	135.7	137.3	138.0	138.0	549.1
Subtotal	993.8	984.3	998.0	986.9	977.2	3,946.5
Desalination Plant	0.0	0.0	27.5	53.4	53.7	134.5
Recycled Water	0.0	0.0	3.3	7.8	10.4	21.5
SWC Proposed Total	993.8	984.4	1,028.8	1,048.2	1,041.2	4,102.6

Source: AIR/SIR Table 3.5

Table 2.9 Sydney Water Breakdown of Proposed Operating Expenditure Components – 2008/2009 to 2011/2012

(\$m 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Total Regulated Opex	996.7	987.4	1,031.8	1,051.1	1,044.2	4,114.4
Opex (less Total Recycled)	993.8	984.3	1,025.5	1,040.3	1,030.8	4,081.0
Less:						
SCA Purchases	163.6	174.7	197.8	201.1	203.2	776.8
WFP Tariffs	103.6	101.7	102.4	101.1	100.7	405.9
Sub Total	726.7	708.0	725.3	738.1	726.9	2,931.7
Less:						
Climate Change Fund (CCF)	30.0	35.9	37.3	35.6	30.7	139.6
CCF Revenue offset	16.6	-21.3	-23.0	-21.7	-17.1	-83.1
Demand Management	37.0	21.3	23.0	21.7	17.1	83.1
Recycled water plants (2)	0.0	0.0	3.3	7.8	10.4	21.5
Desalination plant	0.0	0.0	27.5	53.4	53.7	134.5
Underlying Costs	643.1	672.0	657.3	641.2	632.1	2,602.7

Source: AIR/SIR Table 3.2 except for CCF revenue (Table 2 in Folio 1.1), demand mgt (AIR/SIR Table 11.1) and Recycled Water and Desalination figures (AIR/SIR Table 3.3).

Table 2.9 shows that Sydney Water's underlying costs are reducing over the proposed price path period with a total reduction of approximately \$40 million or 5.9% from 2008/2009 to 2011/2012.

A summary of Sydney Water's total operating expenditure (including desalination expenditure), reported by cost driver, is presented in Table 2.10 below. This table identifies the major proposed changes in operating expenditure over the proposed price path period.

Table 2.10 Sydney Water's Proposed Total Operating Expenditure for core business activities showing key variances from 2007/2008 to 2011/2012

\$m 2007/2008 real	2007/08	2008/09	2009/10	2010/11	2011/12	07/08 -11/12	07-08 -11/12
Labour (excl emp prov)	194.6	191.3	187.3	184.6	186.1	-4.4%	-8.5
Ext consultants	0.4	0.2	0.2	0.2	0.2	-49.3%	-0.2
Hire & contract services	150.9	150.7	173.5	196.3	193.4	28.1%	42.4
Bulk water purchases	163.6	174.7	197.8	201.1	203.2	24.2%	39.6
Materials	47.8	47.5	47.1	47.2	47.2	-1.3%	-0.6
Energy	37.2	32.3	28.7	27.9	27.6	-25.8%	-9.6
Licence fees	9.3	7.4	7.4	7.4	7.4	-20.5%	-1.9
BOO costs – conv	103.6	101.7	102.4	101.1	100.7	-2.7%	-2.8
CCF Contributions	30.0	35.9	37.3	35.6	30.7	2.4%	0.7
Other	86.2	77.1	81.6	81.9	80.3	-6.9%	-5.9
Employee provisions	32.1	29.3	27.9	26.3	26.2	-18.3%	-5.9
Other provisions	3.8	3.7	3.2	3.4	3.3	-14.1%	-0.5
Subtotal	859.4	851.6	894.4	913.1	906.2	5.4%	46.8
Corporate allocation	137.3	94.5	97.8	97.6	95.7	-30.3%	-41.6
Total operating exp	996.7	946.2	992.3	1,010.7	1,001.9	0.5%	5.2

Source: AIR/SIR Table 3.6 for core business activities

Note: Corporate allocations not included in figures contributing to subtotal.

The key areas where operating expenditure has increased significantly are hire and contract services, which increased by \$46.1 million (27.5%) and bulk water purchases, which increased by \$39.6 million (24.2%). It is understood that the proposed operating expenditure for the desalination plant is included in the hire and contract services item, and as such, if the desalination plant expenditure and the bulk water purchases are excluded, the total operating expenditure over the period from 2007/2008 to 2011/2012 shows a decreasing trend.

We are concerned that Sydney Water has not allowed for the potential operating expenditure resulting from capital projects constructed during the price path period (with the exception of the desalination plant and the recycled water projects where the operating expenditure was determined and set as part of the competitive tendering process). Sydney Water has stated that it will absorb any additional operating expenditure resulting from new capital projects by offsetting the likely increases in expenditure with equivalent additional efficiency savings, on top of the proposed gains of \$105 million outlined above.

Whilst this approach appears to set a challenging goal for Sydney Water over the price path period, we note that there are also potential operating expenditure reductions that can be achieved from capital expenditure projects. For example, capital expenditure projects to renew or repair existing assets should actually decrease operating expenditure costs. It is expected that the operating expenditure reductions from the renewal or repair of existing assets could be greater than the increase in operating expenditure from new assets (after all, in many cases this fact would be part of the justification for proceeding with the renewal/repair). In this case, Sydney Water would be overstating its future operating expenditure requirements.

Sydney Water provided details regarding whether they had considered the potential operating expenditure reductions associated with capital expenditure such as renewals or repairs to existing assets and how the level of reductions expected from such capital expenditure compares to the likely level of operating expenditure increases due to capital expenditure on new assets.

Sydney Water referred to discussions held with IPART and the consultants who undertook the review of capital and operating expenditure for the 2005 IPART determination. Sydney Water maintained their position that renewals of existing assets, at best, only maintain the equilibrium of ongoing maintenance. Sydney Water provided the example of water main and sewer main renewals where Sydney Water includes only 140km and 100km of mains renewals respectively each year in the capital program out of the total length of 21,000km and 23,500km respectively for water mains and sewer mains. Sydney Water reported that as they renew or replace existing assets, these assets are effectively replaced by assets moving up into the higher maintenance categories by virtue of their increasing age and/or declining performance.

Sydney Water also contend that the magnitude of potential savings achieved needs also to be taken in the context of the greater potential for increased operating expenditure requirements resulting from the construction of new assets and increasing performance standards.

We acknowledge Sydney Water's point on this matter however we suggest that if the current level of water and sewer main renewals is only maintaining an equilibrium then perhaps additional expenditure needs to be diverted from other programs towards the critical water and sewer main renewals programs. The objective of such programs should be to continuously reduce the length of mains included in the critical mains category.

We have attempted to identify any transfers of costs between regulated and non regulated parts of Sydney Water's business however with the information provided by Sydney Water we are unable to determine if such transfers exist. We note that the AIR/SIR has specific line items for Sydney Water to identify cost transfers to non regulated business groups and that these items have not been completed.

Water

This major product category represents the highest proportion of operating expenditure for Sydney Water with around 53% of the total expenditure spent on water related works. Total expenditure for water increases by \$55.9 million or 9.5% from 2007/2008 to 2011/2012.

Key increases in operating expenditure include:

- Bulk water purchases – increase of \$39.5 million
- Desalination plant – new expenditure increase of \$53.7 million

These increases are partially offset with key cost savings, including:

- Reductions in demand management expenditure of \$24.5 million arising from a decrease in education and advertising programs for water restrictions.
- Water restriction compliance controls and advertising reductions of \$5.9 million as desalination plant and recycling plants reduce potable water use.
- Water filtration plant cost reductions of \$2.8 million.
- Reductions in electricity costs of \$3.6 million due to installation of energy efficient infrastructure and processes and increases in renewable energy generation at Sydney Water facilities.
- Labour savings of \$2.8 million from increased productivity following implementation of the Field Resource Management project and reductions in customer support staff after the introduction of the Customer Management System.

Wastewater

This product category represents about 30% of the operating expenditure for Sydney Water. Total expenditure for wastewater decreases by \$18.7 million or 4.6% from 2007/2008 to 2011/2012.

The major drivers for the decrease in expenditure include:

- Reductions in electricity costs of \$6.2 million due to increases in renewable energy generation at Sydney Water facilities and negotiated electricity supply contract rates.
- Professional services reductions of \$5.4 million arising from the implementation of the Customer Management System and the transfer of responsibilities for operating asset management projects to contractors.
- Labour cost savings of \$3.4 million mainly from reductions to overtime and shift penalties, planned reorganisations within some Divisions, reduced customer service support costs and reductions from the implementation of the Field Resource Management project.

Stormwater

Total operating costs for stormwater projects decrease by \$0.4 million or 3.6% from 2007/2008 to 2011/2012.

The major drivers for the decrease in expenditure include:

- Reductions in the use of professional services of approximately \$0.2 million
- Reductions in labour of \$0.08 million

Recycled water

Total expenditure for recycled water increases by \$10.3 million which represents a 375% increase from 2007/2008 to 2011/2012.

The major drivers for the increase in expenditure include:

- Three recycled water projects were not included in the expenditure for the previous determination including the Western Sydney Recycled Water Initiative Replacement Flows project, the Camellia Recycled Water Plant and the Busby's Bore project.

The Western Sydney Recycled Water Initiative Replacement Flows project is the largest project and has the greatest proportion of the expenditure increase with \$4.4 million of additional costs.

The capital works for the project are being constructed under a competitively tendered Design Build Operate and Maintain contract. The proposed operating

costs for the project have been nominated by the successful tenderer as part of the competitive tendering process.

Sydney Water provided a Business Case for this project outlining the need for the project, the scope of works and timeframes for completion, the consequences of deferral or cancellation, the costs associated with the project (capital and operating), and the expected return on investment for the project.

Corporate

This product category includes Divisions such as Finance & Regulatory, Corporate Services (including IT), Property, Human Resources and Sustainability. The category represents about 13% of the total operating expenditure for Sydney Water.

In previous pricing reviews, we have identified that an average percentage level of corporate expenditure of around 15% of the total operating expenditure was considered good practice. We also note that in the 2005 IPART Determination, Sydney Water's corporate expenditure was around 18.6% of total operating expenditure. On this basis, Sydney Water's current level of corporate operating expenditure is well within the range of good practice for similar water agencies in Australia.

Total expenditure for corporate activities increases by \$0.6 million or 0.5% from 2007/2008 to 2011/2012.

The major driver for the increase in expenditure is:

- Increase in leasing costs of \$4.6 million as a result of the new head office construction.

The increase in expenditure is offset to a large degree by a number of cost savings including:

- Reduced maintenance costs for the current head office building.
- Labour savings of \$2.1 million due to planned reorganisation of staff and reduced customer service support costs.
- Reductions in professional service costs of \$1.3 million due to reduced customer service operations.

Desalination Project

The Sydney Desalination Plant project is a major capital undertaking for Sydney Water and it has some significant operating costs associated with it.

The procurement model used for the desalination plant involves a Design, Build Operate and Maintain (DBOM) contract where the successful contractor is responsible for the operation and maintenance of the plant. Under the terms of the contract, Sydney Water pays a set fee to the contractor to cover the expected operating expenditure required for the plant.

Construction of the desalination plant is expected to be completed in the middle of 2009/2010 and, as part of the proving period for the works, the plant is to be operated at full capacity for a period of two years.

Sydney Water has included operating costs for the desalination plant of \$27.5 million in 2009/2010, \$53.4 million in 2010/2011, and \$53.7 million in 2011/2012. These costs were determined as part of the competitive tendering process.

Sydney Water has provided a specific folio of information on the desalination plant including explanations of the procurement process and costs, the regulatory framework under which the plant will be operated, and annual revenue requirements and operating costs for the plant and the delivery pipelines.

Sydney Water has also engaged an external consultant as a specialist advisor and manager for the desalination plant.

Concerns were raised over how the DBOM contract covers potential variations to the operating expenditure, such as the price of the renewable energy provided, or whether the contract risk associated with changes is borne by Sydney Water or by the DBOM contractor.

A submission made to this pricing review from Dr Greg Leslie of the University of New South Wales (letter dated 12 October 2007, submission from Dr Greg Leslie, Deputy Director, UNESCO Centre for Membrane Science and Technology, University of New South Wales) highlights this issue. The submission stated that Sydney Water's estimates of the power component of the annual operating expenditure were about "10% lower than estimates for other facilities and theoretical cost models". The submission by Dr Leslie also went on to state that "*underestimating power costs for a desalination plant will complicate efforts to set a price for water that seeks to recover the cost of the desalination plant. Also, overly optimistic estimates for the efficiency of energy recover[y] would not allow room to offset the... [potential] effect...of an increase in the price of power.*"

Sydney Water provided further details and explanations on how the DBOM contract deals with potential changes to the operating expenditure, for example, the price of renewable energy; and who assumes the risks associated with any changes to the DBOM contract. Sydney Water indicated that the terms of the DBOM contract place the risk of variances to the operating expenditure on the contractor for all items except the price of renewable energy. However, the terms of the contract do allow for increases in the cost of inputs such as labour, consumables and equipment based on an ABS index or, for some items such as the membranes, based on competitive prices received at the time when the item requires replacement. This scenario would place the risk back on Sydney Water.

Sydney Water reported that it is currently in the process of engaging a renewable energy supplier and as such, the extent to which the risk of future price rises will be held by Sydney Water remains unclear until the contract is negotiated.

Risks due to changes to the DBOM contract are held by the Sydney Desalination Plant Pty Ltd entity however Sydney Water reported that since the contract is based predominantly on performance specifications related to, for example, the quality of water supplied, that the performance requirements are unlikely to change and therefore it is unlikely that the DBOM contract will require changes.

Discussion

We have reviewed Sydney Water's proposed operating expenditure by identifying key cost drivers and by reviewing the detailed increases and reductions in expenditure proposed. We undertook detailed interviews with Sydney Water staff and have identified and reviewed key documentation and supporting information provided by Sydney Water.

We found that in real terms, Sydney Water's proposed operating expenditure is not significantly different from the equivalent expenditure levels approved in the 2005 IPART determination. Our analysis shows that the average approved operating expenditure from the 2005 IPART Determination was \$949 million (refer Table 8.12 pg 90 of 2005 IPART Determination factored to \$m 2007/08 real values) whereas the average proposed operating expenditure is \$1025 million (refer Table 2.8), an increase of only 8%.

We also note that Sydney Water's proposed operating expenditure is relatively smooth over the price path period with a maximum variation of around 2% in the expenditure. We identified that the average operating expenditure over the period from 2008/2009 to 2011/2012 represents a 16.2% increase over the long term average expenditure covering the period from 1992/1993 to 2007/2008. If we compare the proposed average expenditure to the current determination period of 2005/2006 to 2009/2010 we find that it represents an increase in operating expenditure of only 6.1%.

We have also reviewed the processes that Sydney Water has in place to develop the operating expenditure program. Sydney Water provided Business Cases for major projects identified including the Western Sydney Recycled Water Initiative Replacement Flows project, and specific folios of information for the Sydney Desalination Plant.

We note that Sydney Water's proposed operating expenditure includes a number of new, mandated items (desalination plant, demand management measures, etc.) and items over which Sydney Water has limited control (primarily bulk water purchases). When the impacts of these items are accounted for, we found that Sydney Water's underlying or business as usual operating expenditure is decreasing over the regulatory period.

We highlighted a potential issue with how the DBOM contract for the desalination plant covers potential adjustments to the operating expenditure however Sydney Water provided explanations as to how the changes to the contract would be dealt with. In regards to the key issue identified, that is the price of renewable energy, Sydney Water reported that the potential impacts of this would not be clear until the contract for supply of the renewable energy was fully negotiated. For this matter, we note that Sydney Water is being advised by external consultants and specialists in renewable energy and at this stage we must rely on the advice provided to Sydney Water by these specialists to ensure that the risks are appropriately dealt with.

Sydney Water has proposed efficiency gains totalling approximately \$105 million over the price path period and has already incorporated these gains into the proposed operating expenditure. These efficiency gains are higher than the gains achieved during the last determination period.

We note that IPART has sought explanation of historical operating expenditure reductions of around \$320 million and why this level of expenditure could not be maintained in the proposed operating expenditure. Our analysis of Sydney Water's historical operating expenditure indicates that this major reduction occurred between the period from 2002/2003 to 2005/2006 when expenditure decreased from \$1,044 million to \$735 million. Our analysis indicates that the primary factor is this reduction appears to be the employee provisions line item since excluding this item from the operating expenditure indicates that the base operating expenditure actually increased from \$884 million in 2002/2003 to \$885 million in 2005/2006. The employee provisions line item had reported expenditure of \$139 million in 2002/2003 and expenditure of -\$140 million in 2005/2006.

We are concerned that Sydney Water has not allowed for the potential operating expenditure resulting from capital projects constructed during the price path period (with the exception of the desalination plant and the recycled water projects where the operating expenditure was determined and set as part of the competitive tendering process). However Sydney Water has decided to absorb any additional operating expenditure resulting from capital projects by offsetting the likely increases in expenditure with equivalent additional efficiency savings, on top of the proposed gains of \$105 million outlined above. This approach sets a challenging goal for Sydney Water, however it appears to ignore any reduction in the operating expenditure associated with the replaced assets.

We highlighted the potential for operating expenditure savings from capital projects such as renewals however Sydney Water provided explanations on this matter and we acknowledge their point of view. We also made some comments as to whether the level of expenditure on areas such as mains renewals was sufficient to have a significant impact on the magnitude of the critical mains renewals program.

We have not been able to determine if there are any transfers of costs between regulated and non regulated parts of Sydney Water's business since Sydney Water has not reported any transfers in the AIR/SIR nor has any of the information we've received identified any cost transfers.

Our review of Sydney Water's proposed operating expenditure has generally indicated that the processes used by Sydney Water to develop their operating expenditure program appear to be reasonably robust and therefore that the proposed expenditure is deemed to be efficient.

The proposed and recommended operating expenditure for the price path period is shown in **Table 2.11** below.

**Table 2.11 Proposed and Recommended Operating Expenditure -
 2007/2008 to 2011/2012**

(\$000 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
SWC Proposed						
- Water	587.9	584.7	604.4	598.5	590.2	2,377.8
- Wastewater	394.5	388.5	383.3	377.6	376.2	1,525.7
- Stormwater	11.4	11.1	10.3	10.8	10.8	43.0
Subtotal	993.8	984.3	998.0	986.9	977.2	3946.5
Desalination Plant	0.0	0.0	27.5	53.4	53.7	134.5
Recycled Water	0.0	0.0	3.3	7.8	10.3	21.5
SWC Proposed Total	993.8	984.4	1028.8	1048.2	1041.2	4,102.6
Halcrow Recommended						
- Water	587.9	584.7	604.4	598.5	590.2	2,377.8
- Wastewater	394.5	388.5	383.3	377.6	376.2	1,525.7
- Stormwater	11.4	11.1	10.3	10.8	10.8	43.0
Subtotal	993.8	984.3	998.0	986.9	977.2	3946.5
Desalination Plant	0.0	0.0	27.5	53.4	53.7	134.5
Recycled Water	0.0	0.0	3.3	7.8	10.3	21.5
Halcrow Proposed Total	993.8	984.4	1028.8	1048.2	1041.2	4,102.6

3 Capital Investment Program Delivery Systems

3.1 *General*

In undertaking our review of Sydney Water's proposed capital and operating expenditure we applied the approach discussed previously; that is, focusing on the systems and procedures used by Sydney Water to develop and deliver their capital and operating expenditure programs.

Sydney Water provided specific folios of information providing details on the systems categorised into the following three areas:

- annual capital planning cycle – including asset management plans, the one (1) and five (5) year capital investment programs, business cases, deliverability reviews, confidence limits assessment, 12 month capital budgets, and the capital optimisation tool;
- procurement plan – detailing the actual or planned delivery strategies for projects or programs that comprise the proposed capital and operating expenditure; and,
- capital monitoring and reporting systems – to report on performance in achieving the capital investment program through summary reports, quarterly and annual reports, year-end performance assessments, annual procurement reports, and post implementation reviews.

Each of these key areas are briefly discussed in the following sections.

3.2 *Annual Capital Planning Cycle*

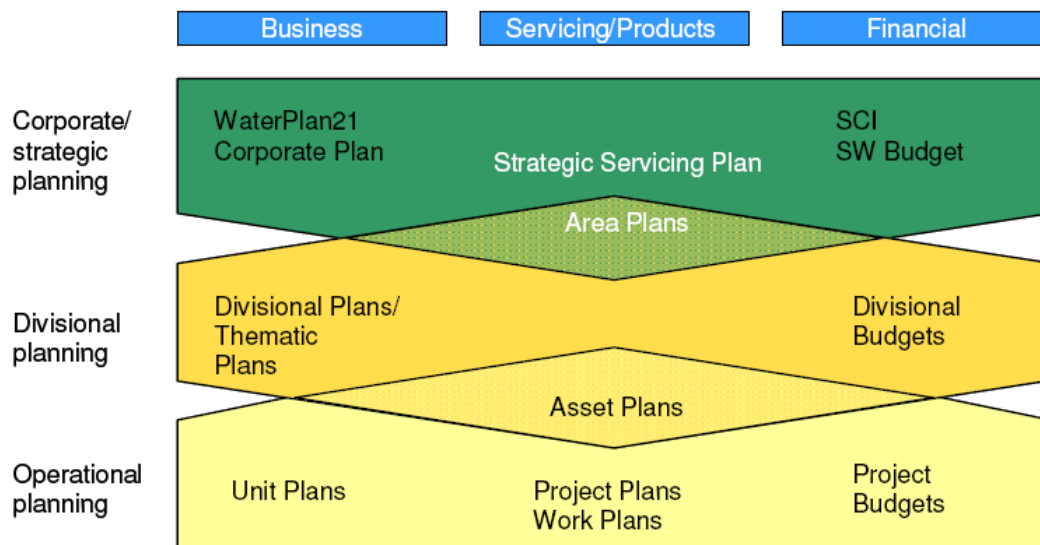
3.2.1 *Asset Management*

Sydney Water has a well advanced asset management system that has previously been assessed as best practice in the 2005 IPART Determination. The overall asset management system covers all levels of the business from the corporate and strategic planning to the operational planning level.

Sydney Water's overall asset management system is outlined in their "Strategic Framework for Asset Management" document which details the "*processes, systems, practices and plans that aim at ensuring its assets are optimally delivering the services demanded of them both now and into the future. These processes focus on the definition of required services and performance asset planning, asset creation, operations, maintenance, renewals and disposal of assets...*". (Strategic Framework for Asset Management, Sydney Water, Sept 2004)

Sydney Water's asset management system operates at a number of different levels with specific plans produced at each level. These levels are shown in **Figure 3.1** below, which is an extract from the Strategic Framework for Asset Management document.

Figure 3.1 Sydney Water Asset Management Framework



Source: Strategic Framework for Asset Management, Diagram 2 pg 6

The various levels of asset management plans include:

- area plans – which focus on future needs identifying growth requirements and new development areas;
- system plans – which focus on the products that Sydney Water provides, that is, water, wastewater, recycling, and stormwater and provide a link between the area plans and asset class plans; and
- asset class plans – which focus on existing assets, identifying maintenance requirements.

Asset management plans are developed through the review of current regulatory, customer and shareholder requirements or service levels, current and projected performance of the assets against these requirements and take into account the actual or derived condition of the assets. The plans are subject to regular reviews both internally and externally.

3.2.2

Capital Investment Program

The development and management of the capital investment program is undertaken by a specific team within the Asset Management Division; the Investment Program Management (IPM) team. The IPM team was established as a key part of the asset management reform program to centralise management of the capital investment program and to drive improvements in planning and delivery practices.

The IPM team has the following specific responsibilities:

- development of the annual and five yearly capital investment programs;
- identification of preliminary capital bids, as part of the annual business planning process, based on detailed investment requirements highlighted in the various levels of asset management plans;
- review of each capital bid assessing the need for the works, deliverability, and available IPART approved funding;
- establishing first stage business cases to support the first year of the program;
- develop and submit draft capital investment program to the Financial Performance and Review Committee (FPRC) and the Finance Committee;
- undertake detailed review of the draft capital investment program including incorporating updated cost forecasts, testing robustness and deliverability, ensuring all investment is supported by a business case, and accounting for adjustments to current funding availability; and,
- undertake an affordability review prior to resubmitting the capital investment program to the FPRC and Finance Committee for endorsement and subsequent approval by the Sydney Water Board.

Sydney Water has provided a list of projects included in the capital investment program covering the period from 2005-2012 and this is presented in **Appendix B**.

3.2.3

Business Cases

Sydney Water has a formalised system of preparing business cases for all investment that is proposed for inclusion in the capital investment program. The business case is a key review tool that allows the assessment of whether a project or program is a worthwhile investment for Sydney Water.

The requirement to undertake a business cases for all projects and programs has been in place for around 10 years with the form of the business case varying over this period. Recent asset management reform has significantly increased the proportion of projects or programs that are supported by an approved business case. As at 1 July 2004 approximately 25% of the 2004/2005 capital program was supported by an approved business case, whilst at 1 July 2007, approximately 98% of the 2007/2008 capital program was supported by an approved business case.

Sydney Water has provided a number of completed business cases for review and has also provided the supporting documentation to assist the completion of the business cases, including “Business Case Guidelines”, “Project Approval Procedures”, and a standard business case template for projects over \$100K. A list of the business cases provided by Sydney Water for review is contained in Appendix A.

3.2.4

Deliverability review

Sydney Water undertakes a detailed deliverability review for its capital investment program with its capital delivery partners in February/March each year. The review is designed to identify the most likely levels of expenditure for the upcoming year, the risks associated with the delivery of the program of works, and can identify potential fluctuations in expenditure allowing expenditure to be deferred or brought forward to reflect the identified risks or opportunities.

Sydney Water provided a deliverability assessment of the 2007-2012 capital investment program which highlights the level of expenditure investment required and the proposed delivery methods. Sydney Water has recently awarded a number of long term contracts to deliver major capital investment including:

- Desalination plan Design Build Operate Maintain (DBOM) contract
- Desalination Infrastructure Alliance – water delivery infrastructure for desalination plant
- Networks Alliance – renewal and construction of water and sewer mains
- SewerFix Wet Weather Alliance – reduction of wet weather sewage overflows and some rehabilitation of sewers
- Priority Sewerage Program Alliance – ongoing Priority Sewerage Program
- Replacement Flows Design Build Operate and Maintain (DBOM) – advanced wastewater effluent treatment program and environment flows replacement
- South Wester Sydney Sewerage Scheme
- North Head STP PARR Alliance
- Sydney Water Construction Services
- Mechanical and Electrical Maintenance and Renewals Program (MEMRP) – minor capital renewals at STPs and SPSs
- Sewer Relining contract – reduction of dry weather sewage overflows

3.2.5

Confidence limits

Sydney Water has been implementing a number of processes recently to improve the management of the capital investment program to reduce the potential impacts of movements in cashflows, delays in projects and scope adjustments; all of which can significantly impact on the capital program delivery.

Processes undertaken include:

- improving the timing of business case submission and approval schedules to ensure they are completed prior to the development of the five year capital investment program;
- creation of a list of lower priority projects that can be brought forward to aid in managing program variations and ensure resources are appropriately used; and,
- undertaking deliverability reviews for the 1 and 5 year programs

3.2.6

Capital Optimisation Tool

Sydney Water are undertaking further improvements to the delivery systems and processes including the current development of a Capital Investment Program Optimisation Tool that will be used as a risk based prioritisation tool for ranking projects within the capital program (and potentially the operating expenditure program).

Sydney Water reported that they have already completed stage 1 of the optimisation project with a Strategic Project Scoring Framework developed based on the Corporate Objectives/Goals and Corporate Risk Framework including input from the Sydney Water executive level and level 3 and 4 managers within the key Divisions. The detailed investment scoring matrices developed have been road test and validated. Sydney Water also reported that stage 2 of the project, the development of the optimisation tool is also underway with the implementation, testing, deployment, training of staff and documentation of the tool expected to be completed over the period from November 2007 to March 2008.

Sydney Water has indicated that the purpose of this tool is to identify and rank projects based on Sydney Water's Corporate Objectives into a full list of projects. If Sydney Water is capital constrained through any means over the period of the IPART price determination, they can identify the highest priority projects that can be implemented under the capital constraint. In addition, if new projects are identified within the price determination period, these projects can be risk assessed and then incorporated into the capital program at the appropriate risk ranking.

While this specific program has not had a material impact on the capital and operating expenditure projects included in the current submission, we note that this tool will be implemented early in 2008 and will presumably have an immediate affect on the prioritisation of the capital program. We might expect that the delivery timeframe of some individual projects could be adjusted based on the prioritised list of projects.

We also note that Sydney Water indicated the practice of capital optimisation has been operating in a manual form for some time.

3.3 *Procurement Plan*

Sydney Water has developed a Procurement Plan which outlines the major capital and operating projects/programs over the next five years and the proposed or actual procurement strategy for the project/program. The Plan is developed by the Asset Solutions Division and is reviewed and updated annually.

Recent improvements to the Procurement Plan have been designed to assist contractors in planning for future works by providing details of tender release dates and proposed timing for the projects/programs allowing the contractors to plan resources for future works.

The Procurement Plan also categorises projects/programs by the intended delivery method and provides status updates, that is:

- Under contract or internally committed;
- Defined works with procurement underway or under development;
- Works where project/program scope and procurement are not yet defined; and
- Defined programs but undefined projects.

3.4 *Capital Monitoring and Reporting*

Sydney Water has a fairly comprehensive reporting program that provides updates on performance in achieving the works identified in the capital investment program. The program includes monthly reporting with “Traffic Light Summary” reports through to quarterly and annual reporting to the Sydney Water Board and external stakeholders.

3.4.1 *Traffic Light Summary reports*

These reports are high level reviews of project/program performance covering milestones, scope budget, risk and timing issues along with forecast cash flow requirements. These reports are prepared monthly and are available to all executive level managers.

3.4.2 *Quarterly reports*

Quarterly reports are prepared by the capital delivery managers to identify the year-end scope, output and cost performance of projects/programs in the capital investment program. The reviews assess the delivery status of each project, associated risks and opportunities, reporting of material variances from the approved investment, and can act to drive the delivery of the program. The Quarterly reports are submitted to the Sydney Water Audit Committee, the Board and NSW Treasury for review.

3.4.3

Annual reports

Annual reports are produced to comply with IPART requirements detailing performance against output measures and annual capital expenditure efficiencies.

3.4.4

Post implementation reviews

These reviews usually take one of two forms, a project execution post implementation review (PIR) or a benefits realisation PIR.

The project execution PIR evaluates the extent to which projects complied with the technical and operating specifications developed prior to project approval and also assists in the identification of areas requiring improvement. This review is undertaken immediately after the project has been completed.

The benefits realisation PIR is undertaken after the project has been in operation for some time as it is designed to assess whether the benefits identified in the original project approval have been delivered. The review process assesses key factors that led to benefits not being realised and documents the outcomes to provide a lessons learned record for future projects.

The benefits realisation PIRs are collated into a quarterly bulletin that is published on Sydney Water's intranet. The FPRC also uses the process during the review of business cases for similar projects so that the lessons learned are incorporated prior to the new project being approved.

3.5

Asset Management System Review

3.5.1

General

IPART has requested a review of Sydney Water's overall asset management systems to assess:

- Sydney Water's asset management frameworks, plans and practices in order to evaluate the appropriateness of proposed capital expenditure;
- the extent to which infrastructure management is consistent with the maintenance of a long term service delivery capacity; and
- Sydney Water's compliance with the requirements of its Operating Licence, specifically clauses 4.8 and 4.9, related to the development of a State of the Assets Report.

We have prepared a separate report, "*Review of Sydney Water's Asset Management Systems*" which provides more details on our review of Sydney Water's asset management systems and supports the findings/recommendations outlined in the following section.

We have reviewed Sydney Water's asset management systems and their ability to apply asset management strategies in order to manage risk at an optimum balance of operational and capital investment. We have looked for evidence that Sydney Water apply a risk based decision making approach and that this is suitably supported by people, processes and tools.

3.5.2

Summary Findings

We note that Sydney Water has made significant investment and achieved improvements to their asset management and capital planning systems over the course of the current determination period, building on what has previously been assessed as a best practice system. Our analysis has indicated that there is still room for improvement and we acknowledge that Sydney Water is implementing an ongoing program of development.

We have made the following key observations:

1. Sydney Water has an effective strategic framework for asset management that integrates strategic business planning and tactical service delivery which is supported by well documented processes that enable transparency and support consistency.
2. Sydney Water has recently adopted the asset owner/asset operator model and this has enabled the successful application of their asset management strategy. This structure will help facilitate future improvements.
3. Sydney Water has been proactive in developing their asset management approach and has acted on numerous suggestions for improvements, highlighted by various reviews of their processes and procedures.
4. This improvement process is ongoing and whilst the integrated approach to planning is commendable, Sydney Water should be careful not to over complicate the various plans (asset specific, investment driver specific and geographic). The overlap between these plans and their specific uses needs to be clear and we acknowledge that Sydney Water has already considered this issue.
5. We recognise that Sydney Water's use of risk based planning is in line with current good practice.
6. We recognise that Sydney Water's use of whole of life costing is in line with current good practice.
7. Sydney Water has a rigorous investment planning process and formal, consistent procedures exist for capital planning approvals. This process (if not the tools in all cases) is commended.

8. Specifically, we feel that the application of the KANEW model to water infrastructure budget setting can be improved and we acknowledge that Sydney Water has already commenced appraising new statistical models for this purpose.
9. We feel that at present, the link between expenditure and subsequent improvements in the levels of service is not transparent enough. This needs to be quantified and fed into future investment prioritisation through monitoring of investments and trending levels of service over time. We acknowledge that Sydney Water is currently undertaking similar analysis for IPART for overflows and water continuity service levels.
10. We note that Sydney Water is currently developing an optimisation capability and this is commended.
11. Distribution pipe renewal rates appear appropriate at 0.5% per year. This rate of renewal is consistent with rates applied elsewhere. However, if this rate is maintained indefinitely, this would suggest an assumed asset life of 200 years. This is long and the rate will probably need to increase. Sydney Water needs to develop statistical deterioration models to determine the most appropriate rate. We acknowledge that Sydney Water understands the requirement for further statistical models/analysis and is assessing options.
12. The State of Assets reports meet the Operating Licence requirements.
13. It is recommended that in the development of its investment optimisation capability, Sydney Water adopts a current best practice approach and undertake the optimisation across the asset base and all of the various investment drivers. This should be achieved using a mathematical calculation engine based on, for example, genetic algorithms or equivalent. We acknowledge that Sydney Water is already developing a capital investment program optimisation tool.
14. We recommend that Sydney Water, in the development of its asset management planning approach, clarify the interactions between asset plans, area plans and service plans. Specifically the potential overlaps between these plans needs to be agreed and we acknowledge that Sydney Water has already considered this issue.
15. The Sydney Water trunk mains renewals program is significant and seems to be based on an asset life model only. We recommend that Sydney Water re-assess the program adopting a risk assessment approach incorporating specific asset condition assessment. For example, a business case should be produced for each trunk main investment proposal. We acknowledge that Sydney Water's trunkmain renewal program is currently based on condition assessment and that business cases are prepared for each renewal program. Further, we recognise that Sydney Water are currently trialling an improved econometric model for this program.

16. We recommend that if Sydney Water continues to apply the KANEW model for strategic budget estimation, they develop statistically valid asset life models and that the analysis is undertaken at a finer level of cohort detail. We acknowledge that Sydney Water is reviewing the use of the KANEW model but are also undertaking works to increase the cohort detail.
17. Move towards a 'monetary' based risk assessment and consideration of externalities and indirect costs to strengthen the risk based approach and improve risk management potential. We acknowledge that Sydney Water are currently trialling an improved econometric model specifically for trunkmains.
18. In order for Sydney Water to be able to closely link investment requirements to improvements in levels of service, asset data and service trends need to be improved and deterioration models developed. We acknowledge that Sydney Water is currently undertaking similar analysis for IPART for overflows and water continuity service levels.

The FMEA methodology used for asset maintenance planning is a best practice strategy.

3.6

Summary

We reviewed the various systems Sydney Water has in place with a view to considering a number of key issues that we believe contribute to the development and delivery of an efficient capital program. We reviewed the implementation and use of processes such as:

- project prioritisation – whereby capital projects are assessed using a risk based approach to determine the risk of deferring the project or reducing the level of expenditure or scope of works required;
- project consolidation – whereby projects with similar outcomes, locations, or scopes of work may be consolidated into a single program/project to achieve efficiencies in delivery; and
- program smoothing (offsetting uplifts) – whereby the cumulative impacts of projects in the program are reviewed at a high level to identify options for smoothing out peaks and troughs in the program and to potentially account for the external market's ability to undertake the projects planned.

Our review of Sydney Water's capital and operating expenditure delivery systems allowed us to follow the processes used by Sydney Water to progress a project from its initial identification at the asset management plan level, its iterative path through the business case process to obtain planning and investigation approval and finally capital expenditure approval, the internal and semi-independent review process undertaken at the various management levels, the FPRC level and ultimately at the Managing Director and Board level, and the final approval of the business case into a project in the capital program.

Our review of these processes has given us a reasonable level of confidence that the systems used by Sydney Water are robust and when used throughout the organisation would result in the development of an appropriate capital program.

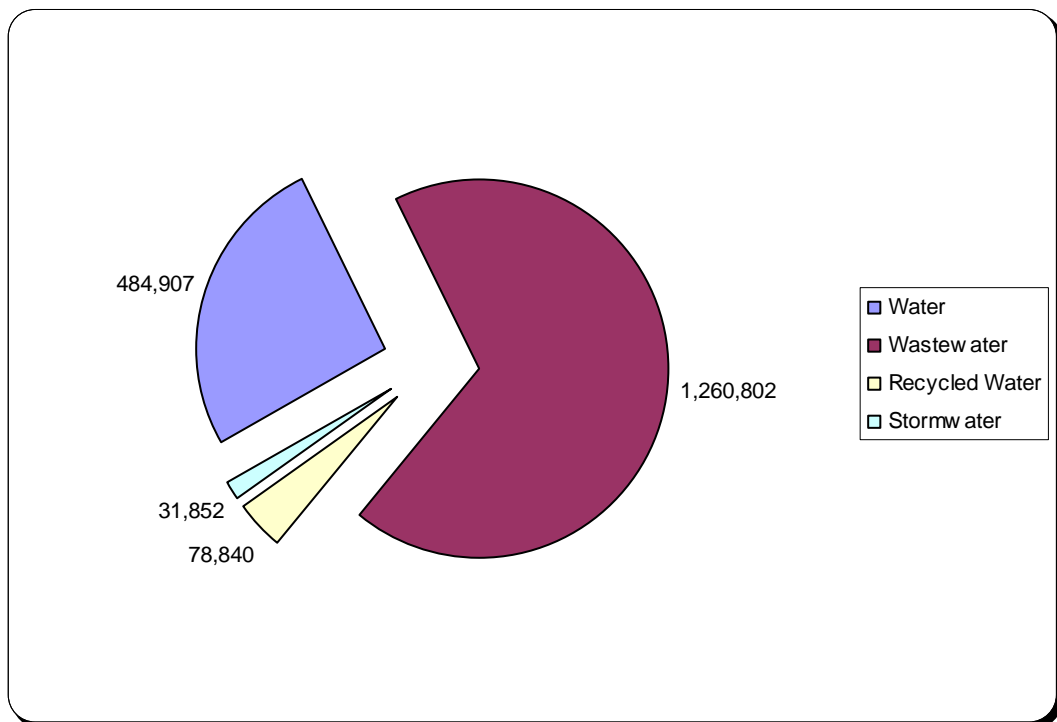
We also identified areas where Sydney Water is seeking to improve their processes for prioritising the capital program using a risk based approach to optimise capital expenditure.

4 Capital Expenditure

4.1 Overview of SWC Submission

4.1.1 General

Sydney Water has a capital budget of \$710 million proposed for 2007/2008, excluding the costs of the desalination project. The main components of this expenditure are water, wastewater, recycled water and stormwater and the relative proportions of these components are shown in Figure 4.1 below.



**Figure 4.1 Sydney Water Budgeted Capital Expenditure for 2007/2008
(\$'000 2007/2008 real)**

Source: Sydney Water 2007 AIR and SIR (BT) – 23 Oct 2007

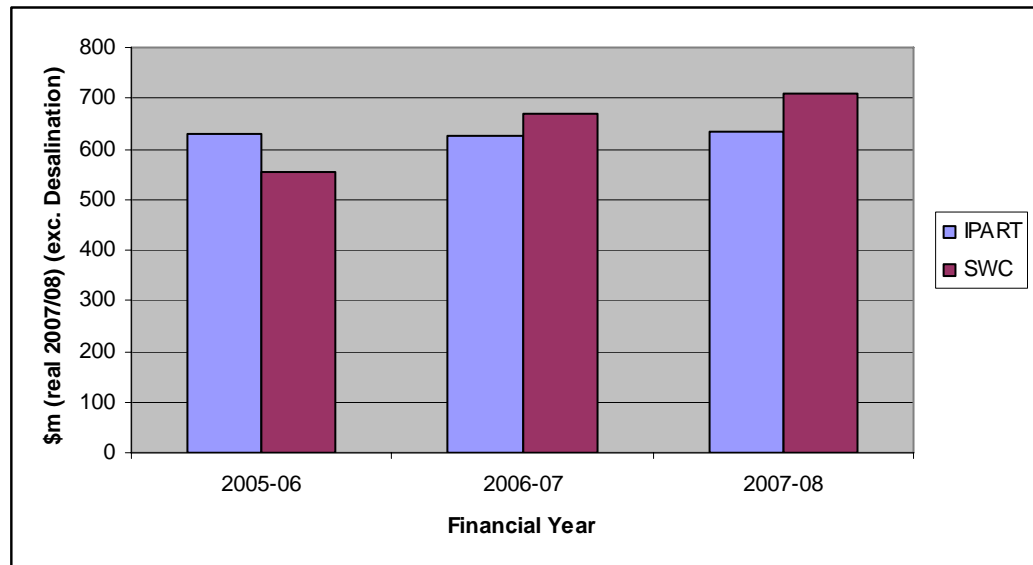
The following sections summarise the historical expenditure, performance against output measures and proposed expenditure presented in Sydney Water's Submission to IPART dated 14 September 2007. The figures presented below have been factored back from real \$2008/2009 values. Some of the figures do not match the information presented in subsequent sources provided by Sydney Water, as discussed in Section 4.2.

4.1.2

Historical Expenditure

General

Sydney Water reports they are expecting to deliver their capital program for the period from 2005/2006 to 2007/2008 in line with the current determination. Total capital expenditure over the period is expected to be \$1,933.8 million. Sydney Water's performance over the period is presented in Figure 4.2 below.



Source: Sydney Water Submission to IPART Figure 4.1

Note: 2007/2008 figures were forecast values as at September 2007

Figure 4.2 Sydney Water's Performance over the Current Determination Period 2005/2006 to 2007/2008

2005/2006 Expenditure

Sydney Water's capital expenditure in 2005/2006 was approximately \$552.8 million which is about 12.2% lower than the target in the current determination of \$629.3 million. Sydney Water reports that the variance against the target was partly due to the deferral of \$34 million that was originally allocated for investigations into the desalination plant but was not required as the Government decided to develop a blueprint design only. Sydney Water also reports cost savings on a number of major projects that saved a total of \$17 million.

Sydney Water reports that the projects listed below were either completed or substantially completed during the review period.

- Consolidation and upgrade of Sewage Treatment Plants (STPs) at Wollongong, Belambi, and Port Kembla. This project also included the construction of a recycled water plant at Wollongong for Bluescope Steel and a one kilometre ocean outfall as part of the Illawarra Wastewater Strategy.

The project catered for growth in the region, improved environmental licence performance and contributed to recycled water targets set out in the *2006 Metropolitan Water Plan*.

- Stage 4a upgrade of Liverpool STP to meet increased growth.
- Expansion of Shellharbour STP to cater for growth and minimise environmental impacts from development.
- Sewerfix programs in the Blue Mountains rehabilitating and upgrading small sewers to minimise wet weather overflows and cater for new growth
- Stormwater environmental improvement program project implementation in 18 targeted hotspots to cater for growth and improved beach quality.

2006/2007 Expenditure

Sydney Water's capital expenditure in 2006/2007 was approximately \$671.1 million compared to the target in the current determination of \$627.6 million; an increase of 6.9% on the target. Sydney Water reported that this variance is made up of accelerated delivery of major programs of work, including the South Western Sydney Sewerage Scheme. Cost savings of approximately \$12 million were achieved during this year, including savings on the Ash Road sewer carrier extension and the Shellharbour STP upgrade.

Sydney Water reports that the following projects were completed in this year:

- Works identified under the 2005-06 dry weather overflow abatement scheme to reduce chokes and contribute to Operating Licence and DECC licence requirements.
- Malabar system risk reduction to reduce concrete sewer corrosion and rehabilitate the system as identified in the avoid fail asset management plan.
- Mt Pritchard/Hammondville Water Supply Zone Augmentation to cater for increased demands and new growth.
- Bondi STP upgrade to reduce the risk of process failure leading to a breach of environmental licence conditions and generally improve STP operations.
- Priority Sewerage Program Stage 1 works providing reticulated sewerage to 1200 existing and future properties improving water quality and reducing public health risks from domestic wastewater treatment systems.

2007/2008 Expenditure

The 2007/2008 capital expenditure budget, excluding works on the desalination plant, is expected to be \$710 million which exceeds the target in the current determination by approximately \$76 million or 12%.

The key items contributing to the target exceedance include a Government directive to proceed with the Western Sydney Recycled Water Plant and cost increases on a number of existing programs including the Priority Sewerage Program Stage 2, North Head Process and Reliability and Improvement Program, Upper Blue Mountains Sewerage Strategy, and the Brooklyn/Dangar Island and South Western Sydney Sewerage Schemes.

Costs increases for the major projects are predominantly related to increasing cost pressures on labour rates and commodities in the construction industry due to the current skills and materials shortages and the high volume of work in the industry.

Sydney Water reports that about 95% of capital expenditure in the program is already committed and that the projects listed below are scheduled for completion or substantial completion in the current year.

- Priority Sewerage Program Stage 1 works at Brooklyn/Dangar Island and Mount Kuringai to improve sewerage services, provide new treatment facilities to improve local water quality, and construct a reticulated sewerage system to service industrial and residential customers.
- Sewerage diversion at Fairfield to assist with the rehabilitation of the North Georges River Submain which has previously been identified from the asset management plans.
- Wet weather flow abatement (Hot Spots 1) to reduce repeat sewer overflows and meet DECC licence requirements.
- Hydraulic modelling of 210 sewer catchments to assess performance and help identify optimal solutions and target areas for dry and wet weather overflow abatement programs.
- Amplification and upgrade of the West Camden STP and recycled water plant to cater for growth and provide recycled water for agricultural reuse.
- Field Resource Management Program implementation which is designed to use field personnel more effectively, record asset information from remote information and improve customer response times.

4.1.3

Performance against output measures

General

Sydney Water is required to report annually on their performance in achieving a set of defined capital outputs. Sydney Water report that they are expecting to meet or exceed most targets, particularly in regards to critical asset renewals, as a result of improved program delivery processes and revised growth projections for green field areas.

Sydney Water provided details of their performance in meeting the capital output measures in Appendix B of their submission to IPART and the results are summarised in the following sections.

Water Services

- Renewals of critical water mains – under target by 31% (28.7km of 41km);
- Renewals of distribution mains – over target by 54% (493.6km of 320km);
- New mains laid by Sydney Water – under target by 95% (12.7km of 274km);
- New recycled water mains – under target by average 43% (49.8km of 89km);
- Pressure control areas – under target by 35% (65 of 100 areas);
- Bulk water meter new/refurbished – over target by 6% (143 of 135 metres);
- Ave leakage per year – met target of 105ML/day;
- Pump station renewals – under target by 6% (34 of 36 renewed);
- Customer water meter renewals – over target by 8% (432,214 of 400,000); and
- Service reservoir renewals – N/A as now considered operating expense.

Wastewater Services

- Repair collapsed sewers – N/A as now considered operating expense;
- Renew critical sewers – over target by 28% (52.4km of 41km);
- Dry weather overflow frequency – not met – Sydney Water set revised target;
- Comply with DECC effluent standard – under target by 5% (95% of 100%);
- Chemical dosing plants – under target by 13% (7 of 8 installed);
- Repair repeat overflow sewers – over target by 27% (324.2km of 256km);
- Rehabilitate rising mains – N/A included in critical sewer main renewals;
- Refurbish STPs – completed at Bondi to deliver cost efficiencies;
- Replace biosolids plant at North Head – complete;
- Install/amplify sewers for new development – over target by 14% (27.3km of 24km);
- Increase capacity at STPs – two projects deferred, delays in two other projects;
- Rehabilitate sewer catchments and build models – over target by 2% (102 of 100 models produced);
- Decommission STPs – all projects complete;
- Renew telemetry - under target by 4% (192 of 200 sites completed); and
- Upgrade biosolids plants – 1 complete with 2 waiting for additional research and development.

Stormwater services

- SEIP projects completed – under target by 5% (20 of 21)
- Alexandra Canal improvements – not completed but progress satisfactory
- Pipe and channel renewal – on target (12km of 11km)

Corporate services

- Complete IT Infrastructure Security Project – ongoing
- Complete Field Resource Management Project – over target by 5% (400 of 380 computers set up)
- Complete IT renewals – ongoing program
- Rationalisation of depots/offices – on target (14 of 14 reduced)

Desalination Project

- Site acquisition – on target but awaiting final settlement
- Project Development – commercial documentation and pilot testing completed
- Detailed Design and testing – sufficient progress to award contracts
- Project management – contracts awarded and specialist studies to be completed by 2007/2008.

Potable Reuse at STPs

- Reduce potable water use by 80% - completed at North Head, Bondi, and Malabar
- Installed recycled water plant – completed at Bondi STP

4.1.4

Proposed Expenditure

General

Sydney Water's reported total capital expenditure program over the proposed determination period from 2008/2009 to 2011/2012 totals \$4.3 billion with an additional \$1.3 billion expected to be completed in the current year 2007/2008. The program consists of the base capital expenditure to meet customer, regulatory and environmental requirements and additional requirements to meet Sydney Water's obligations under the 2006 Metropolitan Water Plan, including a number of specific Government directed programs. Sydney Water's proposed total capital expenditure program is presented in Table 4.1 below.

Water

Key items of capital expenditure for water over the period from 2008/2009 to 2011/2012 include:

- Replacement of reticulation pipelines and reliability improvements - \$260 million;
- Renewals of critical water mains - \$84 million;
- Renewal of equipment in water pumping stations to maintain service standards - \$27 million;
- Leakage reduction and water conservation programs including:
 - Bulk water meter refurbishment and installation of additional metres - \$27 million;
 - Water pressure management schemes - \$69 million;
- Improved measurement and monitoring of water volumes and service reliability through customer meter refurbishment - \$30 million;
- New and amplified services for major growth areas including:
 - North west and south west growth sectors - \$105 million;
 - Other land release areas \$110 million;
 - Infill growth areas - \$95 million;

- Renewable energy program to lower energy costs and achieve carbon emission reduction targets - \$27 million.

**Table 4.1 Sydney Water Proposed Capital Expenditure Program
 2007/2008 to 2011/2012**

(\$ real 2007/2008)	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	Total 08-12
Water	203.0	261.5	273.2	261.9	223.8	1,020.3
Wastewater	396.0	395.1	432.1	361.2	406.8	1,595.2
Stormwater	5.0	11.7	13.3	16.7	11.8	53.5
Corporate	49.0	45.9	48.5	17.6	18.1	130.2
Subtotal	653.0	714.1	767.2	657.4	660.4	2,799.2
Desalination						
Sydney Desalination Pty Ltd	459.0	462.4	69.5			531.9
Distribution pipelines	171.0	259.5	127.5			387.1
Sydney Water costs	16.0	23.4	94.2			117.6
Recycled Water	37.0	98.5	83.8	15.8		198.1
TOTAL	1,336.0	1,558.0	1,142.2	673.2	660.4	4,033.9

Notes: Water, Wastewater and Stormwater figures include a corporate expenditure allocation which is directly attributable to these products. The separate "Corporate" item above only reflects costs which can not be directly attributed to one of these products. Figures also include capitalised borrowing costs.

Source: Sydney Water Submission to IPART Table 4.1 with all figures adjusted to real \$ 2007/2008.

Wastewater

Key items of capital expenditure for wastewater over the period from 2008/2009 to 2011/2012 include:

- Renewal of critical sewer mains based on economic and risk-based condition assessments - \$285 million;
- Wet Weather Overflow Abatement Program - \$203 million;
- Relining sewerage reticulation pipes to reduce sewer blockages and overflows - \$95 million;
- Equipment upgrades and replacements at STPs and sewage pumping stations based on asset condition assessment and whole-of-life costing - \$145 million;
- Odour management programs to ensure compliance with environmental licence conditions - \$26 million;
- Nutrient upgrades at Winmalee STP to improve receiving water quality - \$35 million;
- Diamond Bay Vacluse transfer of dry weather flows to Bondi STP to reduce ocean discharges - \$20 million;

- New and amplified wastewater infrastructure to cater for growth areas in north west and south west sectors - \$99 million;
- Capacity increase at North Head and Warriewood STPs to service growth and amplification of reticulation sewers to service new development - \$39 million;
- Amplification works in other land release areas - \$44 million;
- Amplification works for other infill growth areas - \$118 million;
- Rouse Hill STP upgrade to cater for growth and improve effluent quality - \$22 million;
- Priority Sewerage Program Stage 1 works - \$70 million;
- Priority Sewerage Program Stage 2 works - \$257 million.

Stormwater

Major capital expenditure for stormwater is a continuation of a renewal and rehabilitation program for pipes and channels at a cost of \$57 million.

Corporate

Proposed corporate capital expenditure relates mainly to information technology investments totalling \$146 million. Property related expenditure totals \$81 million and consists mainly of the head office relocation at \$18 million and the Potts Hill site remediation and development at a cost of \$36 million.

Recycled water

Sydney Water currently operates 14 recycled water schemes that produce about 21 GL of recycled water each year and has included \$679 million in the current price path to develop 36 new recycled water schemes that would provide up to 37 GL of recycled water each year by 2014-2015.

Sydney Water is seeking recovery of capital and operational costs on a number of recycled water schemes where there is a lack of full cost recovery in the charges applied for the schemes. These schemes are the Camellia Recycled Water Project (\$20 million over 2 years), the Western Sydney Recycled Water Plant (\$223 million over three years) and the Busby's Bore scheme (\$1 million over one year).

4.2

Expenditure Analysis

4.2.1

General

Sydney Water provided a number of key documents detailing their performance against the current IPART Determination over the period from 2005/2006 to 2007/2008. Sydney Water also provided details of their proposed capital expenditure from 2008/2009 to 2011/2012 and details of their capital and operating expenditure delivery processes.

- Annual Information Return/Special Information Return – as revised in file “*Sydney Water 2007 AIR and SIR (BT) – 23 October 2007*” [AIR/SIR]
- “*Folio 1.2 Performance against current Determination 2005/06 to 2007/08*” (18 September 2007) [Folio 1.2];

- presentation “2005/08 Capital Investment – Sydney Water Efficiency Review 13 September 2007” [historical capex presentation];
- “Traffic Light Summary – Major Capital Projects, 30 June 2007” report [traffic light summary]
- “2005/06 to 2007/08 Capital Performance Folio” (in file ‘2005-08 Capital Performance Folio v0’) [capital performance folio]
- “Capital Efficiency Folio” (in file ‘#Capital Efficiency Folio Draft 310807 – DB edit3 JD 030907.pdf’) [capital efficiency folio]
- “Capital Investment Program Outputs Folio” (in file ‘Capital Output Folio v0’) [capital outputs folio]
- presentation “2008/12 Capital Investment Program – Sydney Water Pricing Submission – 18 September 2007” (18 September 2007) [proposed capex presentation];
- “Capital Investment Program Delivery Folio” (in file ‘Capital Program Delivery Folio v0_1.pdf’) [capital delivery folio]
- “Sydney Water – 2007 IPART Submission (14 September 2007) – Water, Wastewater, Stormwater and Corporate CIP” (in file “SWC 2005-12 CIP Projects and Cashflows.pdf”) [CIP projects list]
- “Sydney Desalination Project – Revenue Requirement” (Commercial-in-Confidence report) 1 September 2007 [Sydney desal paper]
- “Sydney Water Submission to IPART 14 September 2007” [submission to IPART].

For easy reference, these documents have been given an abbreviated reference as shown in square brackets after each document name above. These abbreviated references have been used extensively in the following sections.

4.2.2

Historical Expenditure

General

Sydney Water has reported that they are on track to deliver the capital program in line with the current determination targets. Our analysis of Sydney Water’s actual capital expenditure, as reported in the AIR/SIR, indicates that total expenditure over the period from 2005/2006 to 2007/2008 (excluding construction costs associated with the desalination plant and also capitalised borrowing costs) is \$1,774 million. Compared to the 2005 determination target of \$1,891 million, this indicates an overall \$117 million or 6.2% variation of the actual result against the target.

Table 4.2 below shows how Sydney Water performed against the expenditure approved in the 2005 IPART Determination and against their final proposed expenditure submission.

Sydney Water's capital program has been steadily increasing since the start of the last determination period, with capital expenditure rising from \$463.1 million in 2004/2005 to \$683.8 million, expected in 2007/2008, representing an almost 48% increase over the period. However, 2004/2005 is the lowest point of a cycle of decreasing capital expenditure with expenditure being \$100 million lower than 2003/2004.

Table 4.2 Sydney Water Historical Capital Expenditure for 2005/2006 to 2007/2008 vs 2005 IPART Determination

	2005-06	2006-07	2007-08	Total
SWC Proposed				
Water	225.2	204.5	261.1	690.9
Wastewater	357.6	392.2	389.5	1,139.4
Stormwater	16.3	9.8	6.5	32.6
Corporate	58.0	59.8	53.3	171.1
Total	657.2	666.4	710.5	2,034.0
2005 IPART Determination				
Water	217.4	188.1	218.4	623.9
Wastewater	345.1	372.6	360.3	1,078.1
Stormwater	15.8	9.4	6.1	31.2
Corporate	51.5	56.9	49.3	157.7
Total	629.7	627.0	634.1	1,890.8
SWC Actual Performance				
Water	156.4	171.0	142.3	469.7
Wastewater	318.0	395.3	377.1	1,090.4
Stormwater	16.4	2.7	4.4	23.5
Corporate	38.1	56.6	95.6	190.3
Total	529.0	625.6	619.4	1,774.0
% SWC Proposed	-19.5%	-6.1%	-12.8%	-12.8%
% 2005 IPART Determination	-16.0%	-0.2%	-2.3%	-6.2%

Notes: SWC Actual performance corporate costs exclude capitalised borrowing costs. It is assumed that the 2005 IPART Determination figures also exclude capitalised borrowing costs (refer 2005 IPART Determination pg 50)
 Source: 2005 IPART Determination Table 6.9, AIR/SIR Table 9.3

Water program

Total capital expenditure for water infrastructure programs was \$469.7 million over the price path period from 2005/2006 to 2007/2008, which is approximately \$154.2 million (24.7%) below the expenditure target of \$623.9 million set in the 2005 IPART Determination.

Sydney Water reported, in the historical capex presentation and capital performance folio, that the key variances in the water program were a result of three key areas. These are summarised below and are discussed in the following paragraphs.

- higher levels of reticulation water main renewals;
- lower investment on growth infrastructure matching slower growth of greenfield developments; and
- lower levels of critical water main renewals.

Water main renewals

Sydney Water reported that the overall variance in water mains was a result of:

- higher than expected expenditure on reticulation water main renewals due to additional renewals undertaken (\$169 million vs \$109 million); and
- lower than expected expenditure on critical water main renewals due to improved asset condition assessment processes (\$33 million vs \$59 million).

Sydney Water provided explanations for the increases in reticulation water main renewals during our detailed interviews, indicating that Sydney Water had made a decision to implement a more robust renewals assessment framework that was based on a cost benefit analysis of the replacement cost and the maintenance cost of the water main to determine the optimal renewal timeframes. In addition, the increases in the renewals program were expected to assist in customer service disruption management and contribute to Sydney Water's leakage reduction targets.

The lower than expected critical water main renewals program expenditure was a result of physical condition assessments taking longer than planned leading to delays in renewals expenditure. Sydney Water has updated their condition assessment tools to move from a desktop condition analysis to more field monitoring based condition assessment. Sydney Water reported that the shift to field based data has resulted in a re-ranking of the criticality of some water mains leading to some of the mains being removed from the critical list and it has enabled Sydney Water to optimise renewals expenditure.

Water mains growth related expenditure

Sydney Water reported that the key variance in construction of water mains due to growth was a result of lower growth projections for the north west and south west growth sectors leading to a reduction in the length of new water mains laid. Sydney Water indicated that the expenditure on water mains related to growth was only \$19 million compared to the original IPART target of \$72 million.

Sydney Water provided explanations for the decreases in growth related water main expenditure, citing the significantly downgraded growth projections from the Department of Planning for the major growth sectors in Sydney Water's area of operations that occurred subsequent to the current Determination.

Sydney Water reported that the growth projections were deferred across the price path period and were expected to have an impact from 2008/2009 onwards. Sydney Water also indicated that it had adopted a risk-based review of growth projections and a just-in-time approach to growth related water mains expenditure.

The variance in expenditure is also partially explained by the fact that a proportion of growth related water mains expenditure was included in the water mains renewals program. Sydney Water reported that around 5% of the water mains renewals included capacity upgrades to cater for future infill growth.

Renewable energy program

Sydney Water reported that they had significantly increased expenditure on their renewable energy program, with \$22 million of expenditure incurred over the period compared to the IPART target of \$6 million.

Sydney Water provided explanations for the increases in renewable energy expenditure, indicating that they had made a decision to capitalise on potential energy sources from Sydney Water's wastewater treatment facilities including digester methane gas and the use of hydraulic head differentials for powering mini-hydro power plants. Sydney Water also reported that these works would contribute to Sydney Water's corporate targets to reduce energy costs, to reduce greenhouse gas emissions and to achieve carbon neutrality by 2020.

Sydney Water has entered into an Energy Partners Alliance with external contractors to design and deliver this program of works and has actively pursued an optimum solution with the Alliance and sought to develop a robust cost estimate that can then be locked into the Alliance contract to restrain the scope of the project and the proposed costs.

Sydney Water has provided a formal business case for the renewable energy program and we have reviewed this document and offer the following comments.

Sydney Water's Board has approved expenditure for the overall program of works of \$46.5 million which represents a significant increase over the original estimate of \$30 million, however Sydney Water have explained that the project budget increases were a result of scope adjustments to allow increased production of energy and improved operations and maintenance outcomes. The Business Case for this program includes a justification of the increased costs and explanations for the variances including the benefits of the program's implementation.

We note that Sydney Water engaged an external consultant in January 2007 to review the final target cost estimate for this program of works.

Other major programs

Sydney Water reported on a number of other programs/projects that experienced minor variations from the target expenditure set in the 2005 IPART determination. These programs were identified in the capital performance folio provided by Sydney Water and are summarised below.

- Water pumping station renewals – variance of \$4 million (17%) under target resulting from safety related delays at a construction site, minor delays in the development and specification of works, deferral of projects due to more detailed condition assessments indicating a lower level of renewals required, and the achievement of some capital efficiencies in the program of works.
- Pressure management and bulk flow meters – variance of \$3 million (21%) under target and \$1 million (8%) over target for each item respectively. The variance in the pressure management program related to detailed planning processes that identified a reduction in the number of pressure zones while still providing the required benefit.
- Water modelling program – variance of \$3 million (30%) over target resulting from higher than expected tender prices compared to the original concept estimates adopted for the submission to the previous pricing review. The water modelling program is expected to achieve savings in labour intensive processes, streamline planning work, customer and development enquiries and increase recovery of developer charges.
- IICATS renewals – variance of \$1 million (7%) under target primarily due to capital efficiencies achieved on the project.
- Minchinbury reservoir – variance of \$7 million (140%) over the target due to tendered prices being significantly higher than the concept estimates adopted for the previous pricing review. Sydney Water reported that the differences related to complexities in the detail design that were not accounted for in the concept design and significant increases in steel supply and fabrication costs since the concept design was produced. This variation is quite significant and potentially raises concerns about Sydney Water's ability to forecast and account for increases in tendered prices.

Summary

As reported above, Sydney Water underspent on their water program by approximately \$154.2 million over the period from 2005/2006 to 2007/2008 and has provided evidence on a number of programs and projects that experienced variations from the target expenditure set in the 2005 IPART determination. These programs were identified in the capital performance folio and historical capex presentation provided by Sydney Water.

Our summary of the supporting information provided by Sydney Water in the capital performance folio and historical capex presentation indicates the following:

- Total reported under spend of capital expenditure = \$87 million;
- Total reported over spend of capital expenditure = \$93 million;
- Total expected balance of reported variances = \$6 million over spend.

However, we have already established that Sydney Water's reported underspend was \$154.2 million, leaving an unexplained underspend of \$160.2 million. This is a significant variance to the figures reported in the supporting information provided by Sydney Water.

Sydney Water indicated that some of the additional underspend was made up of numerous minor works and supporting activities each with a total capital expenditure of less than \$10 million. However the total value of the underspend, at \$160.2 million, is very significant and we need to see some additional details on a number of the larger projects that make up this very large discrepancy. In the absence of supporting information for this discrepancy, there is a very strong case for concluding that Sydney Water had significant problems in achieving their water capital expenditure.

Waste water program

Total capital expenditure for the waste water program was \$1,090.4 million over the price path period from 2005/2006 to 2007/2008, which is approximately \$12.3 million (1.1%) over the expenditure target of \$1,078.1 million set in the 2005 IPART Determination.

Sydney Water reported, in the historical capex presentation and capital performance folio, that the key variances in the waste water program were a result of a number of issues. These are summarised below and are discussed in the following paragraphs.

- accelerated delivery of wastewater programs including the South Western Sydney Sewerage Scheme and Sewer Main Renewals;
- higher than expected construction costs for Upper Blue Mountains Sewerage Scheme and Brooklyn/Dangar priority sewerage programs; and

- reduced level of investment in wet weather flow abatement.

Sewer main renewals

Sydney Water reported that the overall variance in sewer main renewals was a result of:

- identification of additional sewer main renewals work required (\$174 million verses \$148 million); and
- identification of additional sewers requiring relining under the Sewer Fix alliance (\$71 million verses \$65 million).

Sydney Water reported that the additional expenditure on sewer main renewals was a result of the identification of new renewals requirements on sewer mains at the Sydney airport site. The additional expenditure on the Sewer Fix program was identified after Sydney Water undertook a review of their choke strategy to address repeat customer impacts and the environmental impact of overflows to waterways.

Sydney Water also reported, during our detailed interviews, that they undertake research and development to develop innovative solutions to sewer relining that reduce costs of increase the efficiency of the relining expenditure. This includes the use of sacrificial coatings, and new Rib Loc Ribsteel structural liners developed by the SewerFix Alliance contractor.

Wet Weather Overflow Abatement

Sydney Water reported that the overall variance in this program of \$23 million (28.8%) under the target was a result of community consultation and planning approval processes taking longer than expected and delays in the initial start-up of the competitive alliance procurement approach.

Sydney Water reported in our detailed interviews that the community consultation process undertaken was more comprehensive than initially expected in the development of the budget and timeframe for this project. Sydney Water indicated that they saw the more detailed engagement of stakeholders as an opportunity to achieve greater efficiencies in the future implementation of the project.

The planning approval process for the program of works was also longer than expected primarily due to misunderstandings of the scope and drivers for the works between the Department of Environment and Climate Change (who regulate the wet weather overflow licences) and Sydney Water. Sydney Water has stated that they have incorporated the lessons learnt from the approval of this alliance project to the processes undertaken for other alliance projects.

Sydney Water also reported that the initial start-up phase of the alliance took longer to complete than expected with this competitive alliance being finalised over a period of 12 months. As discussed above, Sydney Water has now applied the lessons learnt from the start-up of this alliance to future alliance projects.

Priority Sewerage Program

Sydney Water reported that the overall variance in the Priority Sewerage Program (PSP) of \$24 million over target was a result of:

- increases in the scope of works required to meet environmental licence requirements for the Upper Blue Mountains scheme; and
- higher than expected construction costs for the Upper Blue Mountains scheme and the Brooklyn/Dangar Island scheme.

Sydney Water reported, in the capital performance folio, that the two key schemes representing Stage 1 of the PSP are both challenging projects technically and environmentally. The Upper Blue Mountains scheme is located adjacent to World Heritage areas while the main sewers of the Brooklyn/Dangar Island scheme are located along the banks of a major river.

Sydney Water provided additional details on the progress of the schemes under this Stage 1 of the PSP in the traffic light summary report to 30 June 2007. The report indicates good progress is implementing the schemes included in Stage 1 and an acceptable risk profile.

Sydney Water have further indicated that planning processes for Stage 2 of the PSP have commenced.

South Western Sydney Sewerage Scheme

Sydney Water reported that the overall variance for the South Western Sydney Sewerage Scheme of approximately \$72 million over target was primarily a result of accelerated delivery of the program and increased construction costs compared to the budgeted amount included in the previous pricing review.

Sydney Water reported that the accelerated delivery of the works was a result of successes with the procurement delivery model that enabled delivery approximately four months ahead of schedule. An estimated \$20-25 million (35%) of the variance was the result of steel pipeline costs for the Liverpool and Ashfield Pipeline.

Sydney Water has reported that the Liverpool and Ashfield Pipeline will serve a dual purpose – to cater for increased growth in the area and then to serve as a conduit for the provision of recycled water to new developments. When constructed the pipeline will allow diversion of sewage from a critical dual pipeline that requires rehabilitation and once the rehabilitation is completed the Liverpool and Ashfield Pipeline will no longer be required to service growth areas. Sydney Water is proposing to use the pipeline as a conduit to provide recycled water services, thereby eliminating the need for duplicate recycled water pipelines to be constructed in the future.

Sydney Water provided a detailed business case for this project outlining the drivers behind this project and the net benefits of the project.

North Head Performance and Reliability/ Renewals Upgrade

Sydney Water has reported that the variance on the target expenditure of \$11 million (12.5%) for this project was primarily due to the late commencement of works and higher than anticipated construction costs than was budgeted for in Sydney Water's submission to the previous pricing review.

Sydney Water provided additional details in the capital performance folio and historical capex presentation on the variances for this project. Sydney Water also provided detailed business cases for this project outlining the process undertaken in approving and implementing this project.

The original business case for this project was submitted for approval in November 2003 to undertake the planning and investigation of the works required. A concept design and cost estimate were produced by external consultants and the Sydney Water Board approved the next stage business case in December 2004 enabling the project to proceed at an estimated total cost of \$69 million under a Design Development and Construct (DC&C) contract. Changes were then made to the scope of works reducing the estimated cost to \$58 million with an estimated \$45 million contract price.

The procurement process in May 2005 initially attracted three shortlisted contractors however two contractors subsequently withdrew from the tender leaving only a single bidder with a tender price of \$78 million, significantly larger than the \$45 million allowed for the scope of works in the tender.

The Sydney Water Board was advised in October 2005 of the intention to negotiate, with the sole tenderer, a competitive tender price. This process reduced the tender price to \$76 million however in April 2006 the tender process was cancelled pending a full review of the scope of works.

A full review of the project in June 2006 identified additional expenditure requirements of \$43 million due to increased scope and design modifications, cost escalation, contractor risk and contingencies, and the significant underestimation of costs and scope for specific areas. The total cost of the project was now estimated at \$112 million with a total cost of all related work packages estimated at \$144 million.

Updated business cases for the project were submitted to the Financial Performance and Review Committee on 4 July 2006 and again on 7 August 2006 before the project was finally approved. The revised and approved business case required a final capital expenditure of \$105 million with the project divided into three packages of work, two of which would be procured as a Design Development & Construct contract and the final package to be delivered as a Price Competitive Alliance. The expected completion date of the works is now late 2009.

The process this project has taken from November 2003 to the final approval of the business case in August 2006 highlights some key issues:

- Original concept design and cost estimates were seriously flawed – a result of miscommunication between Sydney Water and its external consultants and cost estimators. The design underestimated the works required by a significant margin.
- Part of the reasons for the flawed design and cost lies with Sydney Water however a large proportion lies with the external design consultants used.
- There did not appear to be a clear plan as to how to proceed once it was realised that only one tenderer would bid for the project.

Sewage Treatment Plant and Sewage Pumping Station Renewals

Sydney Water has reported on the variances against the target expenditures for these two programs, with a \$5 million (10.4%) under spend on the sewage treatment plant program and a \$19 million (44%) under spend on the sewage pumping station program.

Sydney Water reported that the major variance in the sewage pumping station program was a result of a combination of factors including:

- the pumping stations are in better condition than expected due to telemetry renewals and major station upgrades and renewals carried out over 2002 to 2005;
- delays in the specification of some of the larger pumping station projects;
- delays in the start-up phase of the new renewals procurement approach through the maintenance partner; and
- the achievement of capital efficiencies in the project.

Wollongong STP Modification

Sydney Water has reported that the variance on the target expenditure of \$8 million (200%) for this project was due to the requirement to undertake additional works at the plant to rectify deficiencies identified during commissioning.

Other major programs

Sydney Water reported on a number of other programs/projects that experienced minor variations from the target expenditure set in the 2005 IPART determination. These programs were identified in the capital performance folio provided by Sydney Water and are summarised below.

- Rouse Hill STP and Recycled Water Plant Amplification and Upgrade – variance of \$3 million (5%) under target.
- West Camden STP and Recycled Water Plant Amplification and Upgrade – variance of \$1 million (2.6%) over the expenditure target.
- Bondi STP Reliability, Improvement and Modernisation Project (RIAMP) – variance of \$2 million (7.4%) under target resulting from capital efficiencies achieved over the course of the project.
- Shellharbour STP Amplification – variance of \$2 million (9.1%) under target resulting from capital efficiencies achieved over the course of the project.
- Sewage Catchment Asset Management Plans (SCAMPs) – variance of \$2 million (16.7%) over expenditure target.
- SPS Telemetry Upgrades – variance of \$1 million (8.3%) under target

Summary

Sydney Water over spent on their wastewater program by approximately \$12.1 million (1.1%) over the period from 2005/2006 to 2007/2008 and has provided evidence on a number of programs and projects that experienced variations from the target expenditure set in the 2005 IPART determination. These programs were identified in the capital performance folio and historical capex presentation provided by Sydney Water.

Our summary of the supporting information provided by Sydney Water indicates the following:

- Total reported under spend of capital expenditure = \$66 million
- Total reported over spend of capital expenditure = \$138 million
- Total expected balance of reported variances = \$72 million over spend

However, we have already established that Sydney Water's reported over spend was \$12.1 million, leaving an unexplained over spend of \$59.9 million. This is a significant proportion of the variance figures reported in the supporting information provided by Sydney Water.

Sydney Water provided some details on this significant, unexplained overspend on the capital program for waste water indicating that the additional overspend was made up of numerous minor works and supporting activities each with a total capital expenditure of less than \$10 million. However, the magnitude of the unexplained overspend is sufficient to warrant a full explanation of the projects that make up the discrepancy and we need Sydney Water to provide additional details. In the absence of supporting information, there is a strong case to conclude that the overspend is not justified and should be excluded from the historical capital expenditure rolled into the regulatory asset base.

Recycled water program

Total capital expenditure for this overall program is approximately \$78.8 million over the period from 2005/2006 to 2007/2008 however this expenditure includes recycled water projects which are self funding.

Sydney Water has identified three schemes for which they are seeking cost recovery from customers. These schemes are the Western Sydney Recycled Water Initiative Replacement Flows Project, the Camellia Recycled Water Plant and Busby's Bore. All three schemes were introduced after the 2005 IPART Determination so there are no specific expenditure targets to compare against.

The total capital expenditure for the three schemes of \$42.9 million over the period from 2005/2006 to 2007/2008 is made up entirely of the replacement flows project as the Camellia plant and Busby's Bore are proposed projects. The remaining recycled water projects, for which Sydney Water is able to self-fund, represent a capital expenditure of approximately \$34.7 million over the same period.

Storm water program

Total capital expenditure for this program is approximately \$23.5 million over the period from 2005/2006 to 2007/2008 which is approximately \$7.7 million (24.7%) under the expenditure target set in the 2005 IPART Determination.

Sydney Water has provided details of the key variances in capital expenditure for stormwater. The stormwater pipes and channels renewals program has a variance of \$4 million (22.2%) under the expenditure target resulting from delays to the delivery of the program and re-scoping of projects to meet stormwater quality improvement strategies. This variance predominantly explains the reported underspend for stormwater and we are satisfied that the explanations provided are appropriate.

Corporate program

Total capital expenditure for the corporate program was \$190.3 million for the period from 2005/2006 to 2007/2008 which represents approximately 10.7% of the total capital expenditure over the period. The actual capital expenditure was approximately \$32.7 million or 20.7% over the 2005 IPART Determination target possibly explained by an increased investment in IT over the period. We note that the increase in corporate expenditure coincides with the timeframe for the desalination project

Key projects in the corporate program include:

- Information technology – business efficiency – variance of \$11 million (36.7%) over the expenditure target due to increased identification of efficiency projects
- Information technology – IT renewals – variance of \$31 million (281.8%) over the expenditure target resulting from the implementation of a new IT Strategy. Sydney Water is seeking to address historic under investment in IT.
- Urban Labour Capitalisation – variance of \$11 million (36.7%) over the expenditure target. This program represents Sydney Water's contribution for upsizing and amplifying the extension of water and sewer mains being undertaken for developers.
- Parramatta Head Office Fitout – variance of \$3 million (11.1%) under the expenditure target resulting primarily from capital efficiencies achieved over the course of the program.
- Property Site Rationalisation Program – variance of \$3 million (12.5%) under the expenditure target.
- Water Meter Replacement – variance of \$3 million (17.6%) over expenditure target resulting from the implementation of program efficiencies that have accelerated the delivery of the works

Output Measures

We have reviewed Sydney Water's performance against the output measures developed as part of the 2005 IPART Determination. The output measures were designed to assist in tracking the delivery of Sydney Water's capital program over the period from 2005/2006 to 2008/2009.

Sydney Water reports that approximately 63% of the target measures were met or exceeded and 37% of the targets were not met. Key variances are summarised in the following points below.

- Renewals of critical water mains – under target by 31% (28.7km of 41km) – due to increased time taken for condition assessments leading to better data on assets and the ability to remove some lengths of mains from the critical condition list while maintaining the same ongoing service reliability.

- Renewals of distribution mains – over target by 54% (493.6km of 320km) – due to clear decision framework to ensure water mains are renewed before repair costs exceed renewal costs.
- New mains laid by Sydney Water – under target by 95% (12.7km of 274km) – due to significantly lower growth in new development areas. Sydney Water has expressed concerns about the target set for this output measure indicating that it is much too high given that the majority of new reticulation mains and constructed by developers and are transferred to Sydney Water. Sydney Water has stated that they wish to review the target for this output measure.
- New recycled water mains – under target by an average 43% (49.8km of 89km) – due to significantly lower growth in new development areas offset somewhat by increases in mains laid to existing customers. Sydney Water also indicated that the target for this measure was not adjusted to reflect the reduced capital expenditure for recycled water in 2005 IPART Determination.
- Establish pressure control areas – under target by 35% (65 of 100 areas) – due to consolidation of pressure control zones while delivering the same outcomes for leak, main break and demand reduction. Sydney Water also indicated that there were delays in activating zones to appropriately consider the potential impacts on commercial and industrial fire suppression systems.
- Renew critical sewers – over target by 28% (52.4km of 41km) – due to better condition assessment information and adjusted risk profiles.
- Dry weather overflow frequency – target not met – Sydney Water have set a revised target as a result of the SPS Upgrade Program completed in 2004/2005 with DECC and Sydney Water investigating each incident.
- Repair repeat overflow sewers – over target by 27% (324.2km of 256km) – due to increases in proposed works detailed in the approved business case for the Dry Weather Overflow Program 2006/07 – 2008/09. This program focuses on reducing chances of multiple overflows impacting individual properties and the potential for adverse environmental impacts.

Discussion

Our review of Sydney Water's historical capital expenditure indicates that it has generally achieved the capital expenditure targets set out in the 2005 IPART determination. Over the period from 2005/06 to 2007/08, Sydney Water's reported actual capital expenditure (excluding costs associated with the desalination plant and also capitalised borrowing costs) was \$1,774 million compared to the 2005 IPART Determination expenditure target, set for the same period, of \$1,891 million. This represents a variance from the expenditure targets of \$116.9 million or 6.2%.

We found that the variance related to a significant underspend in the water program offset somewhat by over expenditure in the wastewater program and a large increase in the corporate program. The largest increase in the historical corporate expenditure also coincides with the commencement of the desalination project in 2007/2008.

The under expenditure in the water program was largely unexplained by Sydney Water with over \$160 million in under expenditure given no justification. In the absence of a subsequent justification by Sydney Water for this expenditure, we would recommend a case for some reduction in the proposed capital expenditure for water.

We were able to compare Sydney Water's performance in achieving their historical capital expenditure with some of the water agencies in Victoria, through information submitted publicly in their Water Plan submissions to the Essential Services Commission. Our analysis of the Victorian water agencies' indicated that the range of performance in achieving historical capital expenditure was about 5.5% to about 202% over expenditure with a rough average of around 15%. In case, however, the over expenditure was a result of increased costs arising from the current drought, works to increase water security, and various demand management measures. These same issues apply, in general terms, to Sydney Water, which had increased expenditure on demand management, water security and similar issues over the period from 2005/2006 to 2007/2008.

We also compared Sydney Water's historical performance to that assessed for the 2005 IPART Determination. It was noted, in the determination report, that while Sydney Water's historical performance was under expenditure for water asset renewals and over expenditure for wastewater asset renewals, the conclusion was drawn that all of Sydney Water's actual capital expenditure for the period was prudent.

Sydney Water provided business cases for some capital projects for our review and these are listed in Appendix A.

We reviewed Sydney Water's performance in achieving the output measures set by IPART, and agreed to by Sydney Water, in the 2005 determination. In general, Sydney Water performed relatively well with 67% of the output measure targets either met or exceeded with the remaining 33% either not met or modified in some way.

The achievement of the output measure targets is seen as a method for assessing the performance of Sydney Water in achieving and implementing key elements of their capital program. One of the key output measure targets not met was the measure “New mains laid by Sydney Water” with performance 95% under the set target.

Sydney Water explained that the performance was affected by significantly reduced growth in key greenfields development areas. Sydney Water further stated that they disagreed with the quantum of the target indicating that the majority of new water mains are constructed by developers and then transferred to Sydney Water. Sydney Water have highlighted that they wish to see this output measure target revised to a more appropriate level.

We would expect, with significantly reduced growth in new development areas that the new recycled water and new sewerage main output measures would also be significantly under the target. While this is accurate in the case of the new recycled water mains (under target by 43%), we could not find any evidence that this was the case with new sewerage mains. In fact, Sydney Water's performance against the relevant output measure, “Install/amplify sewers to serve new development”, was actually about 14% over target.

On the basis of these two issues we believe that there is scope for the revision of the output measure targets and the measures themselves to ensure that they are capturing the key elements of Sydney Water's capital program.

Sydney Water has provided a specific folio of information on their performance against the output measure targets set in the 2005 IPART Determination and we are reasonably satisfied that the reasons provided for the performance are appropriate.

On the basis of our analysis, we found that while there is a significant discrepancy in the water capital expenditure program we noted that this was an under expenditure and would not adversely affect the regulatory asset base. We have found that overall, Sydney Water's historical capital expenditure is reasonable and can therefore be rolled into the regulatory asset base.

4.2.3

Proposed Expenditure

General

Sydney Water has proposed a capital program totalling just over \$4.0 billion over the four years from 2008/2009 to 2011/2012. Table 4.3 shows the proposed capital expenditure program by product with the capital costs of the desalination plant and the recycled water projects shown separately.

Table 4.3 Sydney Water's Proposed Capital Expenditure 2007-08 to 2011-12

(\$million 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
SWC Proposed						
- Water	181	226	263	264	226	979
- Wastewater	433	428	466	377	422	1,693
- Stormwater	5	12	13	17	12	55
Subtotal	619	666	743	658	661	2,727
Desalination Plant	679	795	316	0	0	1,111
Recycled Water	37	99	84	16	0	199
SWC Proposed Total	1,335	1,559	1,143	674	661	4,037

Notes: Figures do not include capitalised borrowing costs but do include other corporate cost allocations as reported in the AIR/SIR. Numbers may not always add due to rounding. Expenditure for 2007/2008 shown for reference only.

Source: AIR/SIR Table 9.3

We attempted to identify and segregate those capital works projects associated with assets for which developers will either contribute to the cost of provision or will build and then handover to Sydney Water. However, we were unable to identify specific projects since Sydney Water does not report such information related to developer contributed assets. In order to achieve this segregation, Sydney Water would have to record the details capital works undertaken in each Development Servicing Plan (DSP) area. When projects are completed by the developer, the assets transferred are entered into Sydney Water's asset register but they are not entered as a project, but simply individual assets such as pipes, pump stations, etc. No identifying information about the DSP area is recorded with the assets entered making it impossible to identify which assets belong to which DSP area.

Developer charges are used to recover the capital cost Sydney Water incurs to upgrade existing services to service new development areas. It is often the case that the developer charges are recovered some time after the capital works have been completed. This also contributes to the difficulty in correlating charges recovered with the capital cost of works undertaken.

Water

The total capital expenditure for water is expected to be \$979 million over 2008/2009 to 2011/2012. Sydney Water has reported, in the future capex presentation, that the bulk of the proposed expenditure will be for water main renewals, leakage reduction and infrastructure to support urban growth. Further explanations of the expenditure for each of these three items are provided in the points below.

Water main renewals

Sydney Water reported this category is made up of the following items.

- Reticulation water main renewals and reliability - \$244 million – required as part of effective life cycle and customer service disruption management and also contributes to Sydney Water's leakage reduction target.
- Critical water main renewals - \$80 million – required as part of the critical water mains strategy with critical mains identified from condition assessment in order to determine the optimum length of renewal. Some renewals are also identified from unexpected breaks or fails.

Leakage reduction

Sydney Water reported this category is made up of the following items.

- Pressure management - \$65 million – covering capital programs to set up pressure control zones.
- Bulk flow meters - \$25 million – covering new flow meters installed to assist in leak detection and the renewal of existing meters to reduced meter error. Sydney Water also indicated that they are looking at district metering to help target areas of high leakage and some automated meter reading to assist in monitoring night time water usage.

Urban growth

Sydney Water reported this category is made up of the following items.

- Minor greenfields growth - \$143 million – smaller areas of new greenfields growth not covered under the key growth sector areas.
- Infill growth - \$199 million – infill growth represents approximately 65% of total growth over next 25 years.
- Northwest sector - \$162 million – representing strong estimates of growth and confidence that growth will be realised.
- Southwest sector - \$27 million – representing uncertain estimates of growth and a lack of confidence that the growth will be realised.

Sydney Water has reported on the specific capital expenditure required under each of the three key items of water main renewals, leakage reduction and urban growth. However, the detailed figures reported do not correspond to the totals in Table 4.3 as taken from the AIR/SIR. Table 4.4 below shows the variation in Sydney Water's reported figures and the AIR/SIR figures reported in Table 4.3.

Table 4.4 Comparison of Sydney Water's Reported Capital Expenditure for Water 2008/2009 to 2011/2012

(\$million 2007/2008 real)	2008-09	2009-10	2010-11	2011-12	Total
AIR/SIR Total Water Expenditure	226	263	264	226	979
Water main renewals	76	87	80	81	324
Leakage reduction	19	27	25	20	90
Urban growth	47	131	181	172	531
Total Reported Expenditure	141	245	286	273	946
% Reported Vs AIR/SIR Total	63%	93%	108%	121%	97%

Note: Expenditure values do not include capitalised borrowing costs but do include other corporate allocations as reported in the AIR/SIR. Numbers may not always add due to rounding.

Source: AIR/SIR and Sydney Water's future capex presentation with reported expenditure factored to real \$2007/2008 figures.

Table 4.4 shows that while the total expenditure reported for water is less than that included in the AIR/SIR, the expenditure for individual years over the price path period does not correlate to the respective years' expenditure reported in the AIR/SIR. In 2010/2011 and 2011/2012 especially, the reported expenditure is 8% and 21% higher than the AIR/SIR respectively. While this reporting error has no bearing on the proposed expenditure (since we are using the AIR/SIR figures exclusively), the error confirms previously identified issues with Sydney Water's reporting of expenditure in relation to cross-checking of figures reported from different sources.

Sydney Water has reported that other major water programs with proposed capital expenditure include:

- reservoir reliability;
- water pump station renewals;
- hydro power schemes;
- water modelling program; and
- IICATS program.

Wastewater

The total capital expenditure for wastewater over the period from 2008/2009 to 2011/2012 is \$1,693 million and Sydney Water has reported, in the future capex presentation, that the key components of this expenditure are sewer main renewals, the wet weather overflow abatement program, the Priority Sewerage Program, and STP and SPS renewals. Further explanations of the expenditure for each of these wastewater items are provided in the points below.

Sewer main renewals

Sydney Water reported this category is made up of the following items.

- Sewer main renewals (avoid fail) - \$268 million – required as part of Sydney Water's avoid fail strategy for sewer mains. Avoid fail, or critical sewer mains, are identified by condition assessment and are prioritised based on a risk management approach.
- Sewerfix - \$89 million – the Sewerfix Choke program focuses on repairing sewer main chokes but also minimising repeat impacts on the environment and the customer. Key drivers are the Operating Licence (customer impacts) and the DECC licence (environmental impacts). Sydney Water reported that they have established service providers and techniques working under term or bundled contracts.
- Wet weather overflow abatement program - \$189 million – a program to prevent repeat wet weather overflows to customer properties and sensitive environmental sites. Key drivers are the current DECC licence targets which cease over the period from 2010 to 2012. Expenditure in 2010/2011 allows for planning and developing the new program while the new program of works commences in 2011/2012. Sydney Water reported that the current and proposed programs are to be delivered through an alliance, which is fully geared up to undertake the program and provide some efficiencies through innovation opportunities.
- Priority Sewerage Program – \$68 million (Stage 1) & \$242 million (Stage 2) – a government directed program with commitments to provide sewerage services to urban fringe developments. The current stages are being delivered by an alliance contract with key clauses requiring integration of lessons learnt, encouragement of innovative techniques in planning, design and program delivery.
- STP and SPS renewals - \$75 million (STPs) and \$61 million (SPSs) – this program includes the renewal of assets at sewerage treatment plants and sewerage pumping stations that have either reached the end of their service lives or are not meeting performance standards. Sydney Water reports that this program is supported by asset management plans and a strategic decision making framework. The programs are currently being delivered through a long term contract, the Mechanical and Electrical Maintenance Renewal Program (MEMRP), which is well established.

Sydney Water has reported on the specific capital expenditure required under each of the key items of wastewater capital expenditure. Table 4.5 below shows the variation in Sydney Water's reported figures and the AIR/SIR figures reported in Table 4.3.

Table 4.5 Comparison of Sydney Water's Reported Capital Expenditure for Wastewater 2008/2009 to 2011/2012

(\$million 2007/2008 real)	2008-09	2009-10	2010-11	2011-12	Total
AIR/SIR Total Wastewater Exp	428	466	377	422	1,693
Sewer main renewals	84	101	85	87	357
WVOAP	29	45	46	70	189
PSP	84	88	72	65	309
STP & SPS	35	30	33	37	136
Total Reported Expenditure	232	264	237	259	992
% Reported Vs AIR/SIR Total	54%	57%	63%	61%	59%

Note: Expenditure values do not include capitalised borrowing costs but do include other corporate allocations as reported in the AIR/SIR. Numbers may not always add due to rounding.
 Source: AIR/SIR and Sydney Water's future capex presentation with reported expenditure factored to real \$2007/2008 figures.

Table 4.5 shows that Sydney Water has only reported, in detail, on about 60% of the proposed capital expenditure for the overall wastewater program leaving \$702 million in capital expenditure not specifically explained. This is a significant proportion of the proposed expenditure and we would not expect that this proportion is simply made up of small projects with a low proposed expenditure.

Sydney Water need to provide much more detailed information on their proposed wastewater capital expenditure as this significant proportion of unexplained expenditure should not be approved without justification.

Recycled water

Total capital expenditure proposed for recycled water projects is \$582 million over the period from 2008/2009 to 2011/2012 however only about \$199 million of this expenditure is related to projects where Sydney Water is seeking cost recovery, with these projects being the Western Sydney Recycled Water Plant, the Camellia Water Recycling Plant and Busby's Bore. Sydney Water provided additional specific details on each of these three projects, along with the other recycled water projects, in a separate submission to IPART titled "*AIR-Scheme Specific information.210907.xls*".

Stormwater

The total capital expenditure proposed for stormwater is almost \$58 million over 2008/2009 to 2011/2012. This expenditure includes the acquisition of land for stormwater services in new developments and ongoing works to improve water quality in the Alexandra Canal.

Corporate

Total expenditure for the corporate program, as reported in Table 9.3 of the AIR/SIR, is approximately \$529 million, however this includes approximately \$259 million in capitalised borrowing costs, which then leaves a balance of about \$270 million. This balance is distributed across the water, wastewater, and stormwater product categories using proportions set by IPART that generally vary for each year of the price path period.

Sydney Water reported that the balance of corporate capital expenditure primarily comprises investment in Information Technology, to renew and enhance IT systems and deliver business efficiency, and Property, which covers land purchases and refurbishment of existing infrastructure. These services can not be attributed individually to the water, wastewater or stormwater categories but are common to all the categories. Sydney Water has reported, on page 30 of their submission to IPART, that the total expenditure for these common services is approximately \$130 million over the period from 2008/2009 to 2011/2012 (factored to \$2007-08 real figures).

Capital Efficiency

Sydney Water has indicated that their capital program is delivered using an efficient procurement method that has previously been reviewed to be “*consistent with best practice*” (Atkins/Cardno report to IPART 2005) and that “*Sydney Water is a leading practice procurement enterprise*” (Department of Commerce review of procurement practices in 2005/06). However Sydney Water has stated that it believes it is impractical to set overall efficiency targets for the capital program. Nevertheless, Sydney Water reported that it still pursues capital efficiencies on all capital projects undertaken. Sydney Water reported that its capital investment processes are structured to ensure that each project is reviewed at various stages throughout the projects life and solutions are optimised.

Our review of Sydney Water's capital investment program delivery systems led us to believe that Sydney Water is delivering efficient capital projects. Sydney Water's business case process with its associated FPRC review appears to be a robust process that seeks out and supports efficient capital expenditure. Further, Sydney Water's move to developing a capital optimisation tool is to be encouraged as this tool, from our brief review, should have the potential to deliver a more efficient capital program.

Discussion

We have reviewed Sydney Water's proposed capital expenditure in the light of our proposed approach and the issues discussed in relation to the expenditure delivery systems and we are confident that the proposed capital expenditure included by Sydney Water in their submission is efficient and that the expenditure proposed should be allowed without specific reductions.

We note that there are two specific projects/programs identified separately, the Sydney Desalination Plant project and the water recycling program, which includes the Western Sydney Recycled Water Initiative Replacement Flows project, the Busby's Bore project, and the Camellia Recycling Plant project. Together these projects account for over 35% of the total proposed capital expenditure program.

We have reviewed the expenditure for the Sydney Desalination project and specifically the procurement methods used. We identified that the procurement method used for the desalination plant, a three stage competitive tendering process for a design, build, operate and maintain contract, is one of the most suitable methods of achieving the most efficient capital expenditure costs in the market at the time. In addition, the use of an alliance to construct the delivery pipelines was also an efficient method of accounting for uncertainties over the pipeline route and ground conditions.

We have also reviewed the expenditure for the three recycled water projects specifically identified and the procurement strategies used for these projects. The largest project, the Western Sydney Recycled Water Plant, was procured using a competitive tendering process for a design, build, operate and maintain contract. As indicated previously, competitive tendering processes are one of the most suitable methods of achieving the most efficient capital expenditure costs in the market at the time. The Camellia project is less than 10% the size of the Western Sydney project and it was procured using a competitive tendering process for a build, own, operate contract. The Busby's Bore project only requires capital expenditure of approximately \$1 million.

However, we remain a little concerned over the markets ability to undertake the volume of work being released by Sydney Water, especially with the desalination plant's construction phase in 2008/2009 and part of 2009/2010. We note that Sydney Water has reported that 80% of the capital program in 2008/2009 is already committed either under contract or committed internally however we still believe that there is a need for smoothing of the proposed capital expenditure in 2008/2009 and also in 2009/2010 by deferring the expenditure into 2010/2011 and 2011/2012.

This smoothing helps reduce the peak of the “baseline” capital expenditure in 2008/2009 which is approximately \$112 million higher than the expenditure in 2007/2008 and the peak in 2009/2010 which is \$164 million higher than the capital expenditure in 2007/2008.

Our brief research into the current state of the construction market indicated that the water, sewerage and drainage infrastructure construction market was forecast to grow by 25% in 2007/2008 and a further 23% in 2008/2009. Further, supply constraints in labour, sub-contractors, equipment and materials are expected with little relief foreseen in the short term.

Consequently, we recommend a deferment of an amount of approximately \$100 million from the 2008/2009 capital expenditure and a further \$150 million from the 2009/2010 capital expenditure in the water and wastewater products only. We recommend the allocation of the \$250 million of deferred expenditure equally in the proportions of \$125 million into 2010/2011 and \$125 million into 2011/2012.

We note that these proposed deferments of expenditure are not a reflection of Sydney Water's capacity to deliver the expenditure, but a reflection of our concerns that the construction market can deliver these expenditure proposals. We are of the opinion that the market would be able to deliver increased capital programs in 2010/2011 and 2011/2012 given that construction activities for the desalination plant would be completed at this time and given the longer lead time for Sydney Water to engage contractors to undertake the works.

Sydney Water has indicated that it does not agree with our initial recommendation to smooth the capital program. Sydney Water has provided the following points of explanation to justify their position.

- The Desalination project incorporates a significant proportion of imported and local equipment that is not market constrained.
- The construction phase of the Desalination project is forecast to decelerate at the start of 2009/10, with specialist resources actively engaged to undertake the ‘proving’ process and commissioning in 2009/10. The impact of the construction component of the project in 2009/10 is not expected to conflict with other capital programs.
- Approximately 80% of the 2008/09 capital program is currently committed under contract or internally, which is expected to increase to almost 100% prior to the start of 2008/09. The existing commitments have already been factored into market expectations.
- Levelling the 2008/09 capital program may have an adverse affect on Sydney Water's ongoing operations including risks associated with:
 - the impact on relationships established with contractors and alliance partners;

- the cancellation of contracts and potential financial penalties;
- not delivering planned service outcomes;
- not delivering operating license requirements; and
- not meeting developmental needs.
- Deliverability reviews undertaken by Sydney Water, including discussions with construction organisations on the market's capacity and interest to deliver the proposed capital program, supports Sydney Water's view that the Desalination project is not expected to conflict with other capital programs.

We recognise Sydney Water's view on this matter, however we still believe that there is scope for smoothing of the capital program to reflect the current high level of activity in the construction market. We recognise that the magnitude of our deferral may be subject to review, however at this stage we propose to maintain our original level of deferment. We offer this view as our opinion to IPART and recognise that IPART has some flexibility to adjust our proposed findings in consultation with Sydney Water.

We note, that our proposed deferment in 2008/2009 and 2009/2010 individually represent less than 15% of the total capital program for the respective years and should be able to be accommodated given Sydney Water has still to confirm approximately 20% of the capital program for 2008/2009 and 50% of the program for 2009/2010.

Our recommended capital expenditure for the proposed price path period is therefore shown in **Table 4.6** below.

Table 4.6 Proposed and Recommended Capital Expenditure - 2007/2008 to 2011/2012

(\$million 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
SWC Proposed						
- Water	181	226	263	264	226	979
- Wastewater	433	428	466	377	422	1,693
- Stormwater	5	12	13	17	12	55
Subtotal	619	666	743	658	661	2,727
Desalination Plant	679	795	316	0	0	1,111
Recycled Water	37	99	84	16	0	199
SWC Proposed Total	1,335	1,559	1,143	674	661	4,037
Halcrow Recommended						
- Water	181	166	193	284	336	979
- Wastewater	433	388	386	457	462	1,693
- Stormwater	5	12	13	17	12	55
Subtotal	619	566	593	758	811	2,727
Desalination Plant	679	795	316	0	0	1,111
Recycled Water	37	99	84	16	0	199
Halcrow Proposed Total	1,335	1,459	993	774	811	4,037

5 Summary Recommendations

5.1 *General*

We have reviewed Sydney Water's historical and proposed capital and operating expenditure for the period from 2005/2006 to 2011/2012 using an approach that focused in the systems and processes used by Sydney Water to develop the expenditure rather than the specific expenditure values applicable for each specific project or program of works.

5.2 *Historical Expenditure 2005/2006 to 2007/2008*

Our review of Sydney Water's historical performance in meeting the expenditure targets set in the 2005 IPART Determination indicated that Sydney Water had performed well in achieving these targets with a variance of 8.7% identified for the operating expenditure and a variance of only 6.2% for the capital expenditure. .

In regards to historical expenditure, we recommend the following:

- **Our review of Sydney Water's historical operating expenditure for the period from 2005/2006 to 2007/2008 indicates that the expenditure appears to be appropriate.**
- **Our review of Sydney Water's historical capital expenditure for the period from 2005/2006 to 2007/2008 indicates that the expenditure appears to be appropriate and should be rolled into the regulatory asset base.**

5.3 *Recommended Expenditure 2008/2009 to 2011/2012*

5.3.1 *Operating Expenditure*

Our review of operating expenditure indicated that there are no major issues with the operating expenditure and it is in fact relatively consistent with historical figures.

In regards to proposed operating expenditure, we recommend:

- **It is our opinion that Sydney Water's proposed operating expenditure for the period from 2008/2009 to 2011/2012 appears to be appropriate and could be approved as proposed. The recommended operating expenditure totals are shown below.**

(\$million 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
SWC Proposed Total	993.8	984.4	1,028.8	1,048.2	1,041.2	4,102.6
Halcrow Proposed Total	993.8	984.4	1,028.8	1,048.2	1,041.2	4,102.6

5.3.2

Capital Expenditure

Our review of Sydney Water's proposed expenditure revealed that there is some potential for smoothing of the capital program to account for our concerns that the construction market may not be able to meet the works proposed in Sydney Water's capital program.

In regards to proposed capital expenditure, we recommend:

- It is our opinion that Sydney Water's proposed capital expenditure for the period from 2008/2009 to 2011/2012 appears to be appropriate but that it requires some smoothing. We recommend that IPART seek to defer some capital expenditure in the amount of \$100 million from 2008/2009 and \$150 million from 2009/2010 and allocated in the proportion of \$125 million to 2010/2011 and \$125 million to 2011/2012. The recommended capital expenditure profile is shown below.

(\$million 2007/2008 real)	2007-08	2008-09	2009-10	2010-11	2011-12	Total
SWC Proposed Total	1,335	1,559	1,143	674	661	4,037
Halcrow Proposed Total	1,335	1,459	993	774	811	4,037

5.3.3

General

In the process of undertaking our review, we identified a number of inconsistencies in the information provided by Sydney Water relating to the format of the expenditure values provided, variances in the expenditure values reported between and within documents provided, and a lack of consistency in how the expenditure values were reported, that is, in real or nominal terms for the 2007/2008 year or for the 2008/2009 year.

In regards to the presentation of expenditure values and supporting information, we recommend:

- That Sydney Water and IPART discuss and attempt to develop a consistent format for the provision of information for this review. We suggest consistent reporting by major cost driver and also by individual project or program of works.
- That Sydney Water ensure that the information provided for the review, including the AIR/SIR and supporting folios, be cross checked to ensure expenditure values are consistent.

Appendix A Business Cases provided by Sydney Water

The following list shows the business cases provided by Sydney Water during the course of this review.

- Renewable Energy Generation – Detail Design and Construct
- South Western Sydney Sewerage Scheme / Critical Sewer Main Renewals Program
- Watermain Renewals 2006/2007 Package A – PMR 8
- Wollongong Recycled Water Scheme Stage 2
- PeopleSoft (FMIS) Base System Upgrade Workstream 2: PeopleSoft Technical Upgrade
- FMIS Payment Processing
- South Western Sydney Sewerage Scheme Liverpool – Ashfield Pipeline – STP Liverpool Amplification Stage 5b
- Western Sydney Recycled Water Initiative Replacement Flows project
- Improving Water System Planning (Water Modelling Project)
- Liverpool STP Stage 6 Upgrade
- Wastewater Asset Renewals Avoid-Fail Sewers Renewal Program 2005/06 to 2006/07
- Critical Watermain Renewal Package T2
- Watermain Renewals 2007/2008 Trunkmains – Package T03
- Delivery of Sewer Trunk Asset Management Plans (STAMPs)
- North Georges River Submain Rehabilitation Package (Avoid Fail Sewer Renewal Program)
- Northern Suburbs Ocean Outfall Sewer Rehabilitation Package (Avoid Fail Sewer Renewal Program)
- The Hoxton Park Sewerage Scheme Ash Road Carrier Section 2
- Sheas Creek, SWC 89, Renewal of Stormwater Pipeline at Redfern Oval
- Warriewood Sewage Treatment Plant Stag A, Odour Mitigation
- North Head PARR

Appendix B 2005-2012 Capital Investment Program list of projects

	1	2	3	4	5	6	7	8
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	Forecast
Capital Program (Sub_Program Code)	Actuals	Actuals	Nominal	Nominal	Nominal	Nominal	Nominal	2005-17
	05/06\$	06/07\$						Nominal
Criticalsewermainrenewals	59.3	46	53.6	52.7	71.4	66.8	70.2	68.3
DeveloperGrowth	14.1	15.9	11	12.2	12.8	13.5	14.2	14.9
DryWeatherOverflowProgram	25.8	24.3	21	21	23.4	24.5	25.7	26.8
Instrumentation	2.2	4.8	5.8	6.1	6.4	6.7	7.9	8.5
ITBusinessEfficiency	10.5	16.1	14.7	13.3	14	14.7	15.4	16.1
ITRenewals	5.2	10.6	26.3	25.9	24.7	18.4	19.3	15.4
ITSecurity	0	0	0.2	1.1	1.2	1.2	1.3	1.3
Land,easementsandfitouts	3.8	8	13.1	11	37	3.8	4	3.9
MEMRPPSP	0	0	8.3	12	15.5	18.4	19.3	21.5
MEMRPSTP	0	0	6.3	13.1	16.2	18.4	19.3	21.1
PressureManagement	1.6	5.8	4.2	12.9	21.8	19.7	14.2	11.0
ReservoirReliability	0.5	0.3	1.5	8.5	10.1	15.3	10.1	11.8
Stormwaterpipesandchannelsrenewals	7.9	2	3.7	11	10.7	6.9	6.4	3.7
STPReliability	0.1	0	0	0	0	0	2.6	3.5
STPupgradesvarious	0	0	0	0	0	2.5	2.6	4.3
WaterMainReticRenewals	53.4	60.9	54.6	44.5	43.2	49	51.5	56.2
WaterMeters	5.6	6.8	7.7	8	9.3	9.6	9.7	9.9
Waternetworkreliability	1.2	0.9	1.2	13	16.9	16.1	17.7	17.7
Waternetworkrenewals	9.3	16.5	15.7	20.5	30.4	18.4	17.1	8.7
WetWeatherOverflowAbatement	4.4	23.5	29.4	30	46.7	49	77.2	88.1
WPSrenewalsvarious	4.3	6.3	6	5.3	4.8	6.6	6.4	7.5
WSDMinorPlant	2.8	2.4	3.5	3.9	4.1	4.3	4.5	4.7
NorthWestGrowthCentre	0	0	0.5	5.6	16.3	60.1	56.6	84.6
SouthWestGrowthCentre	0	0	0	5.2	9.7	2.5	12.9	11.6
PSPStage 2	0.1	0.7	2.1	30.6	86.1	77.9	62.7	502.9
Southern West Sydney Sewerage Scheme	18.8	102	57	11.3	1	0	0	180
PSP Upper Blue Mountains Sewerage Strategy	4.9	29.1	54.6	52.2	6.2	0	0	147.1
NHPAR	10.4	27.9	38.6	40	20	0	0	136.9
SewerRenewals	5.1	5.4	4.2	17.9	17.5	6.1	6.4	115
ParramattaCBDInfill	0	0	1	1.1	6.1	18.8	13.2	91.2
RiverstoneSTPUpgrade	0	0	0	1.1	5.8	0	15.4	87
RouseHSTP&RWP	1.5	16.4	27.1	22	0	0	0	67
WPS200Development	0	0	0	0.2	5.8	12.3	12.9	54.7
RenewableEnergyGeneration	0.3	3.2	23.7	16.8	7	3.4	0	54.5
ParramattaRoadCorridor	0	0.2	1.6	0.9	1.5	8.6	5.1	52.5
WestDaptoDevelopment	0	0	0.7	0.7	4.1	8	9	50
PSPMulgoa/Wallacia	40	6.3	1.4	0.6	0	0	0	48.4
PSPBrooklyn/DangarIsland	4.5	23.5	16.5	1.7	0	0	0	46.3
IICATS	3.3	2.1	11.9	19.6	2.6	2.8	3	45.2
Property-Parramatta	0	4.1	19.6	18.1	0	0	0	41.8
WestCamdenSTP/RWPAmplification	22.4	6.3	8.1	0	0	0	0	36.8
WinmaleeNutrientUpgrade	0	0	0	5.6	29.2	0	0	34.8
Ingleside,WarriewoodRedhillDevelopment	0	0.1	2.4	6.1	11	13.5	0	33.1
STPrenewalsvarious	8.8	18.1	3.3	2.6	0	0	0	32.7
CampbelltownInfill	0	0	0	1	5.6	10.4	7.7	32.6
WaterModelsBuild	3.1	7.7	1.8	5.3	5.6	5.8	0	29.2
MoorebankInfillDevelopment	0	0	0	0.9	0.8	6.1	11.6	28.9
Property-SiteRationalisation	5.7	5.4	10.1	7.2	0	0	0	28.4
NorthernAreaDevelopment	0	0	0	2.7	8.4	6.1	9	26.2
BondiSTPOilandGreaseUpgrade	0	0	0	0	0	6.1	12.9	25.8
BondiRIAMP	17.2	7.8	0.5	0	0	0	0	25.5
NorthRichmondWaterSupplyAugmentation	0	0	0.4	2	2.3	3.7	3.9	24.5
NorthernSuburbsInfill	0	0	0	0.1	0.6	5.6	5.1	23.7
VaucluseDiamondBayStrategy	0	0	0	0.2	0.9	0	19.3	20.5
ShellharbourSTPOptimisationandamplification	16.5	3.4	0	0	0	0	0	19.9
PenrithLakes&ADIDevelopment	0	0	0	2	8.3	0.5	5.7	18.5
WarriewoodSTPOodourControl	0	0.3	6	11.3	0	0	0	17.6
SPSrenewalsvarious	5.6	9.2	0.9	0.6	0	0	0	16.3
SouthernAreaDevelopment	0	0	0	0	0.8	2.8	11.6	15.2

UpperHawkesburyAreaDevelopment	0	0	0	0	0	2.5	2.6	15.1
GreenSquareInfillDevelopment	0	0	0.8	2.4	5.4	6	0	14.7
WinmaleeSTPReliabilityUpgrade	0	0	6.4	8.3	0	0	0	14.7
HoxtonParkDevelopment	2.8	0.8	0	0	2.2	6.3	1.9	14.1
HawkesburyNepeanMisc	0.5	0.3	0.2	3.2	5.4	4	0	13.6
SCAMPModelsBuild	4.8	4.1	4.6	0	0	0	0	13.5
WollongongCBDPotableWaterAmplification	0	0	0.7	2.4	3.5	6.1	0	12.8
PSPMenangle/MenanglePark	0	0.1	0	0	0	0	9.3	12.6
IllawarraWastewaterStrategyPost-Commissioning	0	0	0	3.9	8.2	0	0	12.1
MinchinburySurfaceReservoir	2.7	6.6	2.8	0	0	0	0	12.1
SydneyWest:CarltonUnitedBrewery	0	0	0	0.3	0.7	0	0	12.1
RNSHHospitalInfill	0	0	0	0.4	3.5	8.1	0	12
MalabarSTPOdourControl	0	0	0.5	5.6	5.8	0	0	11.9
SPSTelemetryUpgrades	11.1	0	0	0	0	0	0	11.1
SPS484&RisingMainAmplification	0	0	0.2	3	7.5	0	0	10.7
CronullaInfill	0	0	0	0	0.8	1.7	7.5	10
SydneyAirportInfillDevelopment	0	0	0	0.4	1.8	4.3	3.2	9.7
WFPrenovalsvarious	1.4	0.4	2.6	4.6	0	0	0	9
BlueMountainsWaterSupplyDroughtStrategy	0	0	0	0.6	4.7	3.7	0	8.9
AshRoadCarrierAmplification	3.1	4.5	0.5	0	0	0	0	8.1
StormwaterEnvironmentalImprovementProgram	7.4	0.5	0	0	0	0	0	7.8
EdmonsonParkDevelopment	0	0	0.2	1.5	3.5	2.5	0	7.6
PSPMtKuringai	0.2	0.3	7.1	0	0	0	0	7.6
PotableWaterSavingsatSTPs	0.2	0.2	0.7	3	2.9	0	0	7.1
EastDarlingHarbour	0	0	0	0.7	3.5	2.5	0	6.7
RechlorinationPlants	0	0	0	1	2.9	2.5	0	6.4
WollongongSTPOdourControl	0	0	0	0.2	1.2	4.9	0	6.3
WolliCreekInfillDevelopment	0	0	0.2	1.1	2.3	2.5	0	6.1
StMarysSTPOdourControl	0	0	0	0.6	5.3	0	0	5.8
OperatingSystemforCustomerServices	0	0	0	2.2	3.5	0	0	5.7
MEMRPWPS	0	0	2	3.1	0.5	0	0	5.6
BankstownAirportDevelopment	0	0	0.7	2	1.2	1.5	0	5.4
IllawarraWasteWaterStrategy	0.2	0	0	3.3	1.8	0	0	5.3
WaterPumpingStationReliability	2.3	0.3	2.7	0	0	0	0	5.3
WestHornsbyDevelopment	0	0	0	0.6	4.1	0	0	4.6
ConcordInfillDevelopment	0	0	0	0	2.2	2	0	4.2
SolarDryers	0	0	0	1.1	1.8	1.2	0	4.1
CatalinaReservoir	0.1	0	0	1	2.3	0	0	3.4
SPS614&RisingMainAmplification	0	0	0	1.1	2.3	0	0	3.4
PictonSTPAmplification	0	0	0	0.6	0	0	2.6	3.1
AlexandraCanalImprovements	0.1	0.1	0.7	0.9	1.3	0	0	2.9
LiverpoolInfillDevelopment	0	0	0	0	0.4	1.2	1.3	2.9
Katoomba-LeuraWaterSupplyAugmentation	0	0	0.7	1	1.1	0	0	2.8
BlueMountainsInfill	0	0	0.8	0.8	0.7	0	0	2.3
CastleHillSTPOdourControl	0	0	0	0.2	1.8	0	0	2
PSPOakes/Oakdale	1.3	0.5	0.1	0	0	0	0	1.9
MEMRPWFP	0	0	0.9	0.9	0	0	0	1.8
NorthRichmondSTPAmplification	0	0	0	0.1	0.7	0	0	0.8
AssetSecurity	0	0	0.5	0	0	0	0	0.5
RynanRoadDevelopment	0	0	0.4	0	0	0	0	0.4
UpperNepeanAreaDevelopment	0	0	0	0.3	0	0	0	0.3
MountPritchardPotableWater	0	0	0.2	0	0	0	0	0.2
OdourManagementPlan	0	0	0	0.2	0	0	0	0.2
Total	418.4	549.0	619.0	681.8	780.6	708.4	729.0	3,101.2
								4,486.2
Total AIR/SIR Capex	491.1	627.7	737.6	955.0	1,040.0	807.3	765.9	5,424.7
% of Total Program reported by project	85.2%	87.5%	83.9%	71.4%	75.1%	87.7%	95.2%	82.7%
greater than \$1.0 million threshold total projects								106 112
greater than \$10 million threshold								65
greater than \$50 million threshold								16
greater than \$100 million threshold								5



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