Halcrow Pacific Pty Ltd

November 2008

Independent Pricing and Regulatory Tribunal (IPART) of New South Wales

Review of Capital and Operating Expenditure for Gosford City Council

Final Report

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Independent Pricing and Regulatory Tribunal (IPART) of New South Wales

Review of Capital and Operating Expenditure for Gosford City Council

Final Report

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Contents

Executive Summary

Introduction

Halcrow has been engaged by the Independent Pricing and Regulatory Tribunal (IPART) to undertake an independent review of capital and operating expenditure associated with the provision of water, wastewater and stormwater services by Gosford City Council (Council). This work forms part of the process of reviewing/setting prices for regulated services from 1 July 2009 to cover a period of up five years.

The primary objectives of this review are to assess, across the Council's regulated water, sewerage and drainage businesses, the following:

- the efficiency of Council's operating expenditure for the period from 1 July 2006 to 30 June 2009;
- the efficiency of Council's proposed operating expenditure for the period from 1 July 2009 to 30 June 2014;
- the prudence of Council's capital expenditure for the period from 1 July 2006 to 30 June 2009; and
- the efficiency of Council's proposed capital expenditure for the period from 1 July 2009 to 30 June 2014.

An assessment of asset management frameworks, plans and practices has been necessary to assist in evaluating the appropriateness of capital expenditure and to enable the Tribunal to consider the extent to which infrastructure management is consistent with maintenance of long term service delivery capacity.

Council's Pricing Submission

Council submitted its *Proposal for Water, Wastewater and Stormwater Prices* (pricing submission) to IPART on 15 September 2008. The proposal outlines the Council's proposed strategy for the period 2009/10 to 2013/14. The AIR/SIR was subsequently submitted on 25 September 2008. Due to errors, however, Council reissued the AIR/SIR on 15 October 2008.

Interviews were held with Council on 7 and 8 October 2008 to discuss the key aspects of it's submission. Some additional information was requested during the interviews. Council has endeavoured to provide this information wherever possible.

We have used these submissions by Council as the basis of our review. We have endeavoured to obtain assurance over the accuracy and robustness of the data provided, however, a detailed audit of this information is outside the scope of this project.

A number of differences have been identified between the figures reported in the AIR/SIR and those reported in the pricing submission. In these instances, we have relied on the figures reported in the AIR/SIR. Council has indicated that these errors have not had an impact on its pricing proposals. As we have not reviewed Council's pricing model we are unable to comment on whether the errors have a material impact on its prices. In instances where we have identified errors with the AIR/SIR, this is specifically highlighted in the text of our report.

The number and extent of changes to Council's initial submission has made our analysis of historical and forecast expenditure difficult and time constrained. These issues may indicate a breakdown or absence of internal quality controls over Council's budgeting and reporting processes. Council has indicated that while it accepts the errors in the AIR/SIR, the materiality of these errors is small and, in most cases, has not impacted its pricing submission. However, as noted above, as we have not reviewed Council's pricing model we are unable to comment on this statement. Furthermore, whatever the magnitude of the errors in documents provided by Council, the time taken to resolve inconsistencies remains the same. Hence, we strongly recommend that Council address this for future reporting to IPART.

Operating Expenditure

Historical Expenditure

Council's submission to IPART indicates that the total operating expenditure has exceeded the 2006 Determination and that Council forecasts that its operating expenditure requirements will increase (in real terms) over the period of the next Determination. The overspend occurred predominantly in the water service, and to some extent in the stormwater program. Expenditure in respect to wastewater was less than allowed in the Determination.

During our interviews with Council, we sought to understand the controls that Council has in place to track and manage budget overruns, particularly in relation to the significant budget overruns in the water service that have taken place over the current Determination period. While it is apparent that variations in expenditure are tracked and reported to senior management and Councillors, we saw little evidence that variations in budget had been scrutinised or challenged, or

that consideration had been given to alternative approaches. As a consequence, we are uncertain as to how Council gains assurance that budget overruns are justified and prudent. This in turn has hampered our ability to gain assurance that Council's historical levels of expenditure, particularly throughout the past few years, have been prudent and efficient. This raises questions as to the prudence and efficiency of Council's operating expenditure projections, which have been forecast from the 2008/09 budgeted figures.

Proposed Expenditure

Council is proposing a slight increase in its annual operating expenditure budget over current levels over the coming Determination period. We have reviewed Gosford Council's 2007/08 AIR/SIR submission and its historical and proposed operating expenditure and have assessed whether the expenditure is both prudent and efficient. On the basis of our review, we have recommended that some adjustments be made to Council's proposed operating expenditure. We have recommended that adjustments be made where we believe that the proposed expenditure is not efficient, or where we do not consider it reasonable to include these items within the Determination operating expenditure.

Council's proposed and Halcrow's recommended operating expenditure for the price path period 2009/10 to 2012/2013 is summarised in **Table E1**. The figures include allowances for efficiency gains.

Table E1 Proposed and Recommended Operating Expenditure ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Council Submission (Table 3.5 AIR)				
Corporate Overheads	8,882	8,919	8,959	8,959
Water	14,374	14,727	14,284	14,200
Wastewater	14,908	14,695	14,631	14,870
Stormwater	4,188	4,189	4,039	4,038
Total Proposed Opex (efficiency included)	**42,352**	**42,530**	**41,913**	**42,067**
Efficiency already applied to water	98	198	248	-
Efficiency already applied to wastewater	97	195	244	-
Total Proposed Opex (pre-efficiency)	***42,548***	***42,923***	***42,404***	***42,067***
Halcrow Recommended				
Corporate Overheads	8,388	8,422	8,460	8,460
Water	13,104	13,513	13,113	13,179
Wastewater	14,722	14,515	14,456	14,700
Stormwater	4,188	4,189	4,039	4,038
Recommended Opex	40,403	40,639	40,068	40,377
Halcrow Recommended adjusted to add back Council's efficiency allowance				
Corporate Overheads	8,388	8,422	8,460	8,460
Water	13,202	13,711	13,361	13,179
Wastewater	14,820	14,710	14,700	14,700
Stormwater	4,188	4,189	4,039	4,038
Recommended Opex	**40,598**	**41,032**	**40,559**	**40,377**
Efficiency Allowance (%)	0.75%	1.00%	1.25%	1.25%
Efficiency Allowance	304	410	507	505
Halcrow Recommended Opex (efficiency included)				
Corporate Overheads	8,325	8,338	8,354	8,354
Water	13,103	13,574	13,194	13,014
Wastewater	14,709	14,563	14,516	14,516
Stormwater	4,157	4,147	3,988	3,988
Total Recommended Opex (efficiency included)	***40,293***	***40,622***	***40,052***	***39,872***

Efficiency Savings

In its pricing submission, Council has proposed efficiency savings for the water and wastewater services. No efficiency savings have been offered for the stormwater service. The efficiencies proposed are 0.5% in year one, 0.5% in year two of the price period, and a further 0.25% in year three (cumulative) although we note that these efficiency savings have note been included in the AIR for 2012/13. Council has indicated that it is currently unsure of where these efficiency savings might be made, although it intends to undertake a review during the current financial year. While we acknowledge Council's proposed efficiency targets, we are of the opinion that there may be greater scope for Council to achieve efficiency savings within its operating budget. The third year target proposed by Council appears to be in accordance with industry trends and we acknowledge that some initial adjustment will be required for Council to commence implementation of efficiency measures. We would, however, expect some reasonable improvement in the first year and have adjusted Council's forecast accordingly.

Recycled Water

Our review of recycled water operating expenditure has been made in the context of periodic charges and whether Council has made allowances for recycled water in its pricing submission. Within its AIR/SIR, Council has reported operating expenditure associated with recycled water twice (once under 'recycled water', and again under the 'water service'). We have adjusted Council's proposed water service operating expenditure to exclude operating cost associated with its recycled water systems.

Capital Expenditure

Historical Expenditure

Council's Submission to IPART indicates that capital expenditure during the current Determination period has been greater than the levels approved by IPART in the 2006 Determination. This is primarily a result of overspends within its water program although it has also overspent its wastewater program.

Within the constraints of an operating framework driven by the ongoing and worsening drought conditions on the Central Coast, we found expenditure against the 2006 Determination to be broadly prudent. Under normal operating conditions, we do not believe that the Gosford and Wyong Combined Water Authority (GWCWA) would have concurrently pursued multiple water resource strategies. As such, the GWCWA probably would not have progressed a number of projects, particularly the JWS Groundwater Extraction Projects. However, the

ongoing and worsening drought conditions necessitated the need to fast track a number of Drought Contingency Projects in order to secure additional water resources.

As a result of this, projects within the 2006 Determination have been delivered at the expense of efficiency. Costs have escalated significantly from those initially proposed, and in the case of the JWS Groundwater Extraction Projects, available yield has bee less than anticipated. Projects have been separately procured and delivered on a piecemeal basis, which reduces the scope to realise procurement efficiencies which are available for schemes of this nature.

Based on the circumstances discussed above, we do not believe there were any realistic opportunities for GWCWA to procure these assets more efficiently. However, as a result of this, and the coincident development of an appropriate asset management framework, Council should be in a better position to appropriately plan, justify, define and deliver future programs of work. This will provide future opportunities for Council to procure larger/clustered programs of work that will realise economies of scale and reduce procurement/management costs.

Proposed Expenditure

In considering the overall capital program proposed for delivery during the 2009 Determination period, our recommendations have largely been based on our review of a representative sample of projects. We reviewed ten (10) schemes (water, wastewater and stormwater) in detail. When compared to the overall capital program, these schemes represent 45% of the program in terms of capital value (excluding recycled water).

Based on our review of Council's proposed water capital program, we consider the overall proposed program to be both prudent and necessary. However, we do not believe the current perceived level of system performance justifies Council's proposed increase in its water mains renewals program. In addition, we believe there is scope to further reduce the unit cost of mains renewal activity by reconsidering the approach to delivery of the renewal program. A longer term strategic view of requirements will enable more efficient procurement practices to be adopted, which could further reduce unit costs by 5-10% year on year. As such, we have re-profiled Council's water mains renewals program and have applied a 5% efficiency target to the proposed capital expenditure.

Council has proposed a significant increase to the wastewater capital program included in its pricing submission. A significant contributor to this proposed increase is the Terrigal to Kincumber Augmentation, with forecast expenditure of $40.5M. We undertook a detailed review of the need for this scheme and do not consider the scheme, as currently defined, to be justified or prudent. Council has suggested that a reduced budget of $23M will enable it to complete a least cost option for Terrigal/Avoca and undertake identified work in the other catchments. While we agree with this way forward we have not reviewed this revised scope and as such are unable to confirm the prudence and cost effectiveness of this alternative option.

Council is proposing stormwater expenditure at levels similar to those for the current Determination period (taking into account grant funding). As Council relies heavily on grants to fund its stormwater program, any shortfall in Government grant funding will impact the ability of Council to deliver its proposed stormwater program. We note that Council did not deliver the full proposed capital program from the 2006 Determination. As such, we consider it unlikely that Council will deliver its proposed program for the 2009 Determination period. On the basis of our review we recommend the proposed capital expenditure be adjusted so that it is in line with the average annual expenditure from the current price path period.

Our proposed and recommended capital expenditure for the coming Determination period is shown in the **Table E2**.

Table E2 Proposed and Recommended Capital Expenditure ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Council's Submission				
Water	57,992	21,973	6,155	16,372
Wastewater	28,091	21,059	22,170	13,791
Stormwater	6,102	5,559	5,066	5,813
Total Proposed Capex	***92,185***	***48,591***	***33,391***	***35,976***
Halcrow Recommended				
Water	57,830	20,261	4,157	9,101
Wastewater	26,920	17,789	15,767	9,955
Stormwater	5,736	5,225	4,762	5,464
Halcrow Recommended Capex (pre-efficiency)	**90,485**	**43,275**	**24,686**	**24,521**
Adjusted Water Program[1]	56,380	18,728	2,523	7,514
Adjusted Wastewater Program[2]	20,420	7,789	10,767	9,955
Stormwater Program[3]	5,736	5,225	4,762	5,464
Efficiency Target (%)	**-**	**1.0%**	**2.0%**	**3.5%**
Efficiency savings				
Water	0	187	50	263
Wastewater	0	78	215	348
Stormwater	0	52	95	191
Halcrow Recommended				
Water	57,830	20,073	4,107	8,838
Wastewater	26,920	17,711	15,552	9,607
Stormwater	5,736	5,173	4,667	5,273
Halcrow Recommended Capex (post-efficiency)	**90,485**	**42,958**	**24,325**	**23,718**

Note (1) Excludes Water Mains Renewal program where efficiency already applied
(2) Excludes Terrigal to Kincumber where program has already been adjusted
(3) Efficiency has been applied to the whole stormwater program

Efficiency Savings

Based on the apparent difficulty Council has encountered delivering schemes to budget, let alone at reduced cost, efficiency targets set at program level are unlikely to be realised. However, in light of the fact the Council is in the process of developing a sound asset management framework and is looking at the way in which programs of work can be delivered more efficiently, we consider that the

potential for efficiencies exist and that Council should actively pursue and capture these. As such, we have proposed a staged efficiency target, which will increase from 1% in 2010/11 to 3.5% by 2012/13.

Recycled water

Council has initiated a significant program to produce and supply recycled water. Our review of recycled water capital expenditure has been made in the context of periodic charges and whether Council has made allowances for recycled water within its submission. We reviewed three (3) schemes for Council's recycled water program. Based on the projects reviewed, and in the context of periodic charges, we do not believe the recycled water program to be either prudent or justified. We note, however, that Council has not made a pricing proposal for recycled water.

Output Measures

As part of the 2006 Determination a combination of output (activity) measures were proposed, based on both the delivery of key JWS schemes and a number of other performance based measures relating to asset renewals.

We agree with the continuation of the specific JWS output measures to ensure the timely completion of the various water resource schemes currently being delivered. However, we do not believe other asset performance based measures are appropriate at this stage, until Council's proposed asset management framework has been fully established and systems are in place to accurately capture performance data.

With this in mind, we consider it may be more appropriate to measure progress against the established timeframes for implementing the core and advanced asset management framework system improvements. We would expect the majority of this work to be substantially complete for the next IPART submission and that future capital programs will be based on actual asset performance or condition.

In addition to the above, given the significant overspend reported on a number of projects delivered to date, it may be appropriate to measure 2009 Determination estimates against actual project outturn for all major projects above the materiality threshold. We would therefore expect the accuracy costs submitted in the next submission to be accurate to within ±20%.

1 Introduction

1.1 Background

Halcrow has been engaged by the Independent Pricing and Regulatory Tribunal (IPART) to undertake an independent review of capital and operating expenditure associated with the provision of water, wastewater and stormwater services by Gosford City Council (Council). This work forms part of the process of reviewing/setting prices for regulated services from 1 July 2009 to cover a period of up five years.

1.2 Scope

The focus of this project is to provide a review of the adequacy and appropriateness of Council's proposed level of capital and operating expenditure. The adopted levels of such expenditure are a key driver in setting the prices that can be charged by Council in respect to the regulated services that it provides.

The primary objectives of this review are to assess, across the Council's regulated water, sewerage and drainage businesses, the following:

- the efficiency of Council's operating expenditure for the period from 1 July 2006 to 30 June 2009;
- the efficiency of Council's proposed operating expenditure for the period from 1 July 2009 to 30 June 2014;
- the prudence of Council's capital expenditure for the period from 1 July 2006 to 30 June 2009; and
- the efficiency of Council's proposed capital expenditure for the period from 1 July 2009 to 30 June 2014.

An assessment of asset management frameworks, plans and practices has been necessary to assist in evaluating the appropriateness of capital expenditure and to enable the Tribunal to consider the extent to which infrastructure management is consistent with maintenance of long term service delivery capacity.

1.3 Approach

1.3.1 General

Council submitted its *Proposal for Water, Wastewater and Stormwater Prices* (pricing submission) to IPART on 15 September 2008. The proposal outlines the Council's proposed strategy for the period 2009/10 to 2013/14. The AIR/SIR

was subsequently submitted on 25 September 2008. Due to errors, however, Council reissued the AIR/SIR on 15 October 2008.

We have used these submissions by Council as the basis of our review. We have endeavoured to obtain assurance over the accuracy and robustness of the data provided, however, a detailed audit of this information is outside the scope of this project.

A number of differences have been identified between the figures reported in the AIR/SIR and those reported in the pricing submission. In these instances, we have relied on the figures reported in the AIR/SIR. Council has indicated that these errors have not had an impact on its pricing proposals. As we have not reviewed Council's pricing model we are unable to comment on whether the errors have a material impact on its prices. In instances where we have identified errors with the AIR/SIR, this is specifically highlighted in the text of our report.

Interviews were held with Council on 7 and 8 October 2008 to discuss the key aspects of it's submission. Some additional information was requested during the interviews. Council has endeavoured to provide this information wherever possible.

We have reported expenditure values in 2008/2009 real terms as directed by IPART and have adjusted Council's reported expenditure using the inflation based indexes provided by IPART. Where figures are reported in a different price base, this is specifically noted.

1.3.2 Review of Operating Expenditure

In undertaking the review of actual and forecast operating expenditure, the following tasks were completed:

- Review of the actual and forecast operating expenditure from 2006/07 to 2013/14, to the extent necessary to undertake the following tasks.
- Review Council's functions and costs of operations, including:
  - operations, support functions;
  - maintenance and servicing activities; and
  - administration and overheads (both direct and corporate allocations).
- Identification of the amounts spent on each function.
- 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 2006 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 Council's potential for cost reduction for each function and make reasoned recommendations about efficiency gains that IPART can consider when determining efficient operating expenditure levels for price setting. Where current expenditure in an area of operations was assessed as inadequate, specification and quantification of recommended additional expenditure was undertaken.
- Assessment of the efficiency of Council's proposed level of operating expenditure for each year between 2009/10 and 2013/2014. For each year, we developed reasoned estimates of the level of operating expenditure that is required to efficiently undertake Council's regulated functions.
- Identification and analysis of any transfer of costs between regulated and unregulated parts of Council's business providing comment on any such transfers which we consider inappropriate.
- Identification of the potential for operating efficiencies arising from capital projects (including avoided costs through the implementation of recycled water projects), together with quantification of these efficiencies.
- Identification and segregation of operating costs associated with recycled water services.
- Assessment of the potential for efficiency saving to be achieved within the operating expenditure budget over the period 2009/10 to 2013/14, an provision of evidence and reasoning to support the proposals.

1.3.3 Review of Capital Expenditure

In undertaking the review of actual and forecast capital expenditure, the following tasks were completed:

- Identification of capital works programs and projects from 2006/07 to 2013/14, separately identifying projects satisfying IPART's materiality threshold of $1M.
- Detailed investigation into the project planning and actual outcomes for at least 10 per cent (by number) of the projects satisfying IPART's materiality threshold of $1M, also accounting for at least 10 per cent of the total value of the capital program.
- Review of the outputs of the capital program against the output measures agreed at the 2006 Determination.
- Assessment, against industry best practice and the practices that existed at the time of the 2006 Determination, of Councils asset management frameworks, processes and plans, and the rigour of its 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 Council 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 Council.
- Assessment of the prudence of Council's capital expenditure for the period from 2006/2007 to 2008/2009 and nomination of a value for any capital expenditure considered imprudent. Prudence has been assessed against identified drivers and variations from capital expenditure proposals identified at the 2006 price review have been examined.
- Assessment of the efficiency of Council's capital expenditure program for the period from 2009/2010 to 2013/2014 and provision, for each year, of reasoned estimates (by program) of the level of capital expenditure that is considered efficient in order for Council to undertake its business and functions.
- Recommend capital expenditure values for IPART's modelling purposes.
- Identification and segregation of the 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 Council and reconcile actual and proposed developer funded capital expenditure with forecast capital expenditure in Development Servicing Plans.
- Identification and segregation of the capital works projects associated with assets for which other external parties will either contribute to the cost of provision or will build and hand over to the agency.
- Identification and segregation the capital works projects associated with recycled water assets.
- Identification of the potential for and quantification of any deferred or avoided capital costs arising from recycled water projects.
- Identification of the potential for efficiency savings to be achieved by Council within the capital expenditure program over the period 2009/10 to 2013/14 and provision of evidence and reasoning to support the proposals.

1.4 Gosford and Wyong Councils Water Authority

Planning in relation to the Central Coast water supply headworks is undertaken by Gosford Wyong Councils Water Authority (GWCWA). The GWCWA recommends to the Councils strategies relating to development and management of the joint water supply (JWS) catchments, dams, weirs, treatment and major distribution facilities.

All expenditure (operating and capital) expenditure associated with JWS assets is split according to a pre-defined contractual arrangement between the Councils based on volume of water used. This generally equates to a 50%:50% (approximately) split. For the purposes of reporting proposed expenditure in its AIR/SIR, Council has reported 50% of the costs associated with these JWS schemes.

The Councils, through the GWCWA, have developed and adopted a long term water source planning strategy, WaterPlan 2050. This plan details the Councils' strategies for managing and securing water supplies to ensure the growing population of the Central Coast has sufficient water to meet its needs for the next fifty (50) years.

2 Operating Expenditure

2.1 General

2.1.1 Overview

Council's submission to IPART indicates that the total operating expenditure has exceeded the 2006 Determination and that Council forecasts that its operating expenditure requirements will increase (in real terms) over the period of the next Determination. The overspend occurred predominantly in the water service, and to some extent in the stormwater program. Expenditure in respect to wastewater was less than allowed in the Determination.

Figure 1 shows Council's historical and proposed operating expenditure, and the expenditure funded by IPART in the 2006 Determination.

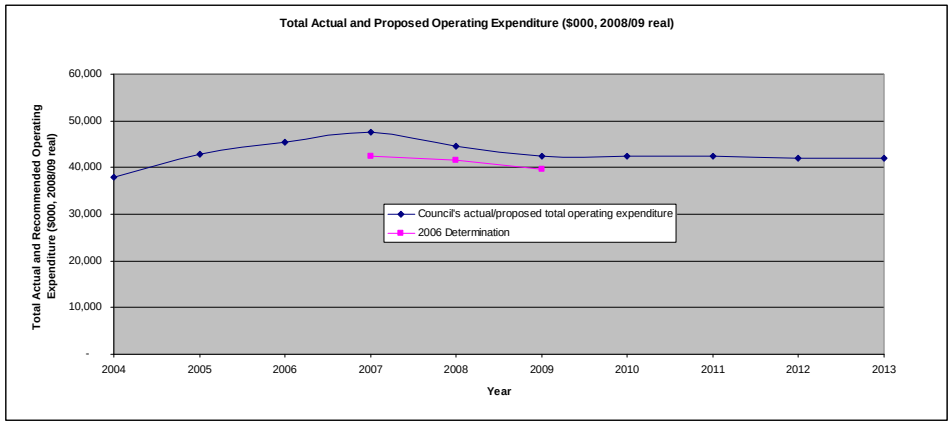

Figure 1 Total Actual and Proposed Operating Expenditure ($000, 2008/09 real)

The following sections detail the results of our review of Council's functions, its actual and proposed operating expenditure, and the results of our efficiency assessment.

During the interviews with Council, we identified a number of errors in both the AIR/SIR and in Council's budgets. It appears that some of the revisions to annual budgets made during the budget review process were not fed into the 2009/10 budget or into the projections of operating expenditure reported by Council in its AIR/SIR. In addition, a number of the documents provided by Council were found to be inconsistent with the figures reported in the AIR/SIR. As a result of

errors identified in Council's submission and AIR/SIR, Council was required to resubmit its AIR/SIR.

In addition to the above, we note that the sum of the 'other' expenditure reported in AIR Table 3.1 does not correspond to the 'other' expenditure reported in AIR Table 3.6. The difference is the result of recycled water charges which have been reported twice within the AIR. Council has indicated that recycled water charges were excluded from the operating costs adopted for the calculation of the price in the pricing submission. As we have not reviewed Council's pricing model we are unable to comment on this statement.

The number and extent of changes to Council's initial submission has made our analysis of historical and forecast expenditure difficult and time constrained. These issues may indicate a breakdown or absence of internal quality controls over Council's budgeting and reporting processes. Council has indicated that while it accepts the errors in the AIR/SIR, the materiality of these errors is small and, in most cases, has not impacted its pricing submission. However, as noted above, as we have not reviewed Council's pricing model we are unable to comment on this statement. Furthermore, whatever the magnitude of the errors in documents provided by Council, the time taken to resolve inconsistencies remains the same. Hence, we strongly recommend that Council address this for future reporting to IPART.

2.1.2 Review of Council's Functions – Regulated Business

Gosford City Council's corporate structure is split into the following five key directorates:

- City Services;
- Environmental Planning;
- Water and Sewerage;
- Corporate Services; and
- Community Services Organisational Development.

With the exception of stormwater, the majority of activities of the regulated water business are undertaken and managed by the Water and Sewerage directorate. The management of stormwater is split between the City Services and Environmental Planning directorates, as stormwater management activities are more directly linked to Council's land use planning and management responsibilities.

In order to ring-fence expenditure incurred by the regulated business, Council uses separate general ledger accounts for its water, wastewater and stormwater services. Where Council's unregulated directorates undertake activities for the regulated

water business, the expenditure incurred is charged back to the regulated business in the form of a corporate overhead charge (refer to **Section 2.2**). The activities undertaken include Finance, Information Management, Legal Services, and Customer Services.

Water and Sewerage

The Water and Sewerage directorate is broken down into five business units. **Table 1** provides a breakdown of these business units, together with key activities performed by each.

Stormwater

As noted previously, Council's stormwater service is provided by two different directorates. The City Services directorate is responsible for maintenance and operations activities, whilst the Environmental Planning directorate is responsible for capital planning and delivery.

Table 1 Water & Sewerage Directorate

Business Unit	Key activities	Nature of expenditure	Staff FTE *	Comment
Asset Management & Planning	Manage asset planning, strategic investigations, drought, demand, environmental and integrate water cycle management	Primarily capital	30	Majority of activities are undertaken by a mix of in-house and external consultants
Regulatory Services	Internal regulatory arrangements, compliance	Primarily operational	15	Majority of activities are undertaken in house
Operations	Manage day to day operations, stakeholder and customer relations, development of short term asset maintenance and operational plans	Primarily operational	133	Most operations and maintenance activities are undertaken in house.
Technical Support	Business planning, communications and strategic support, New Water Initiatives	Primarily operational	5	Majority of activities are undertaken in house
Performance Management	Develops performance indicators for Council's water authority, performance auditing, annual and statutory reporting	Primarily operational	2	Majority of activities are undertaken in house

Note (*) – The Director's Office has 1 FTE bringing the total for Water and Sewerage to 186 FTE.

Figures as per Water & Sewerage Mayoral Overview, September 2008.

2.1.3 *Budgeting and the tracking and reporting of expenditure overruns*

Council's operating budget is aligned to its organisational structure. In the Water and Sewerage directorate, the manager of each of business unit is responsible for developing and managing their own budget. The majority of operating expenditure is incurred by the Regulatory Services, Operations and Performance Management business units.

Annual budgets are set by rolling forward current year actuals, with adjustments to account for changes in the operating environment. Business unit managers report on performance against budget to the Director of Water and Sewerage on a monthly basis. Quarterly budget reviews are also undertaken, with reporting to Councillors.

During our interviews with Council, we sought to understand the controls that Council has in place to track and manage budget overruns, particularly in relation to the significant budget overruns in the water service that have taken place over the current Determination period. While it is apparent that variations in expenditure are tracked and reported to senior management and Councillors, we saw little evidence that variations in budget had been scrutinised or challenged, or that consideration had been given to alternative approaches. As a consequence, we are uncertain as to how Council gains assurance that budget overruns are justified and prudent. This in turn has hampered our ability to gain assurance that Council's historical levels of expenditure, particularly throughout the past few years, have been prudent and efficient.

2.2 *Corporate Overhead Charge*

2.2.1 *Historical overhead charges*

Each year, Council's regulated water business pays the unregulated business a corporate overhead charge. The corporate overhead includes charges for activities and services provided by functions that sit outside of the regulated Water and Sewerage directorate. These functions include Finance, Information Management, Legal Services, Property, Procurement and Materials, Secretariat, Customer Services Communications, Organisation Development, Internal Audit, and Mayor and Councillors. The 2008/09 corporate overhead reported in the AIR is Council's budgeted figure, and it will account for approximately 21% of the annual operating budget of the regulated water business. **Table 2** shows the actual corporate overhead charged to the regulated business compared to the allowance set by IPART in the last Determination. This is also illustrated in **Figure 2**, which shows both historical and proposed corporate overheads compared to the allowance set for the Determination period.

Table 2 Corporate Overhead spend vs Determination ($ 000 2008/09 real)

	2006/07	2007/08	2008/09	Total
Determination	9,765	9,436	9,107	28,307
Actual	9,949	11,124	9,045	30,119
Variance	185	1,689	- 62	1,812
Variance (%)	2%	18%	-1%	6%

As is shown in **Table 2**, the corporate overhead charge exceeded that allowed by IPART in the previous Determination.

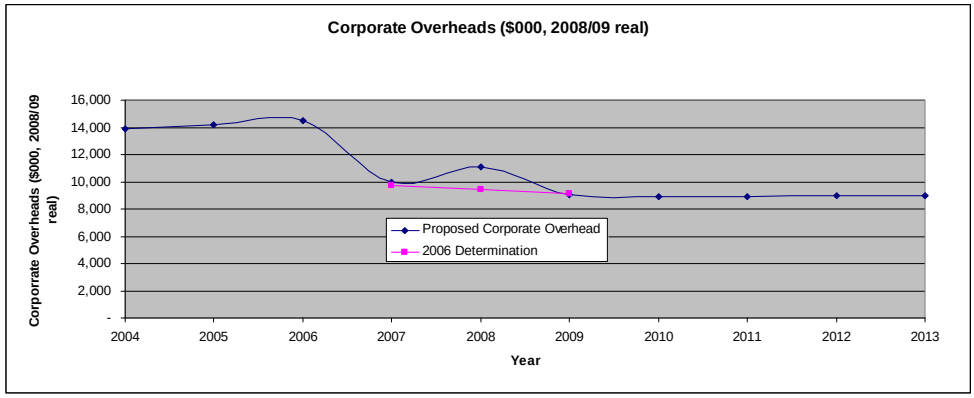

Figure 2 Historical and Proposed Corporate Overhead Charge ($000 2008/09 real)

Since 2006/07, Council has calculated its corporate overhead charge using an activity-based framework, which separately allocates expenditure to the water, wastewater and stormwater services. We have undertaken a detailed review of the 2008/09 corporate allocations. Approximately 88% of the 2008/09 corporate overhead has been allocated using the activity based drivers that Council has explained in its pricing submission. The remaining overhead has been apportioned between Council's major business areas based on assumed percentages to reflect the proportion of time spent servicing the water, wastewater and stormwater services.

In general, we found that the method used to allocate the costs appears reasonable and is transparent. However, Council was unable to explain or provide information to support the basis for a number of the drivers used to allocate the corporate overheads, some of which had a significant impact on the overhead ultimately charged to the regulated business. In some cases, the drivers appear to

have been rolled forward from previous years and Council was able to provide little or no explanation of the basis of the splits to the regulated business.

A review of Council's AIR indicates a significant change in the allocation of the corporate overhead between the water, wastewater and stormwater services between 2008 and 2009, the result being that the charge to the stormwater service has increased by approximately 280%. A comparison of the spreadsheets used to calculate the 2007/08 and 2008/09 corporate overhead charges indicates that the increase is due to a change in the apportionment of expenditure between water, wastewater and stormwater in one of the drivers ('rates assessments'). This is shown in **Table 3**.

Table 3 Rates Assessments Drivers used in Corporate Overhead Charge

	2007/08	2008/09	Difference
General	34%	21%	-13%
Water	34%	20%	-14%
Sewer	31%	19%	-12%
Drainage	1%	21%	+20%
Waste	0%	20%	+20%
Parking	0%	0%	0%

As the 'rates assessments' driver has been used to allocate $4.8M of general fund spend, the impact on the corporate overhead charge is significant. As Council was unable to explain the nature of the driver to us during the interviews, we are uncertain as to why the driver has been changed. Council did, however, indicate that there have been no significant changes to the nature of support provided to the regulated business. Consequently, we would not expect any significant changes to the either the overall corporate overhead charge, or the split of it between the water, wastewater and stormwater services.

If the 2007/08 split of the 'rates assessment' driver is used to calculate the 2008/09 corporate overhead, the charge to the stormwater service is $530k, which is in line with the charges in 2006/07 and 2007/08. In the absence of sufficient explanation from Council as to the reason for the change in the 'rates assessments' driver, we recommend that the 2007/08 split be used as the basis for calculating the corporate overhead charge.

We also recommend that Council undertakes a thorough review its overhead allocation calculation. In particular, we recommend that the drivers be reviewed to ensure that they result in an appropriate allocation of expenditure to each service, which accurately reflects the level of activity (and hence expenditure incurred) in undertaking activities for the regulated business.

In addition to the above, our review identified a number of other issues with the corporate allocation. These include:

- Some corporate governance costs have been allocated to the regulated water business, including costs associated with Council elections ($233k). To include this type of expenditure in the corporate overhead charge appears contrary to NSW Government guidelines (refer *Pricing & Costing for Council Businesses, A Guide to Competitive Neutrality*, NSW Department of Local Government, July 1997.
- Activities unrelated to the operations of the regulated water business have been allocated in the overhead charge. For example, the overhead charge includes allowances for the Gosford Festival ($69k), Australia Day ($46k), and the Flora Festival ($19k). We consider that these, and other similar allocations, are inappropriate and should not be transferred to the regulated business.
- Accommodation charges for Erina and Woy Woy Depot have been charged twice (once via a direct allocation, and once via an indirect allocation). We consider the indirect allocation of the accommodation charge inappropriate.

On the basis of our review of the corporate overhead charge, we recommend that $504k be excluded from the 2008/09 annual corporate charge.

Table 4 provides a breakdown of this assessment. A detailed breakdown of the overheads which we consider to be unreasonable is included in **Appendix A**.

In addition to the above, we have been unable to correlate the corporate overhead charge (calculated from Council's corporate overhead model for 2007/08) with the figures reported in the AIR.

Table 4 2008/09 Corporate Overhead Charge ($000 2008/09 real)

	Water	Wastewater	Drainage	Total
Council's Calculations				
Direct Allocations	3,414	2,702	1,501	7,617
Secondary Allocations	370	331	115	815
Accommodation Allocations	294	294	25	613
Total	4,078	3,327	1,640	9,045
Halcrow Analysis - Adjusted for 'rates assessments' allocation				
Direct Allocations	4,085	3,295	531	7,911
Secondary Allocations	411	367	38	817
Accommodation Allocations	294	294	25	613
Total	4,790	3,957	593	9,341
Impact of adjustment	**712**	**630**	**-1,047**	**295**
Adjustment for overhead not reasonable	**-395**	**-391**	**-13**	**-799**
Recommended adjustment to Corporate Overhead	**317**	**239**	**-1,060**	**-504**

2.2.2 *Forecast corporate overhead charges*

Corporate overheads account for approximately 21% of Council's forecast operating expenditure requirements over the period 2009/10 to 2012/13. Council has forecast the corporate overhead charge using the 2008/09 charge as a base and making some minor changes to account for real cost increases. **Table 5** provides a breakdown of the corporate overhead charge, together with our assessment of what the charge should be for the coming Determination period.

Table 5 Forecast Corporate Overhead Charge ($000 2008/09 real)

	2008/09	2009/10	2010/11	2011/12	2012/13
Council's Forecast					
Corporate Overheads ($k)	9,045	8,883	8,920	8,960	8,960
Real increase in corporate overhead		-1.8%	0.4%	0.5%	0.0%
Halcrow Review					
Corporate Overhead ($k)	8,541				
Real increase in corporate overhead		-1.80%	0.41%	0.45%	0.00%
Recommended Corporate Overhead		8,388	8,422	8,460	8,460
- Water Service	4,396	4,316	4,334	4,354	4,354
- Wastewater Service	3,566	3,502	3,516	3,532	3,532
- Stormwater Service	580	570	572	574	574

We have assumed the same real increases in the corporate overhead charge as assumed by Council. In the absence of detailed supporting information we have been unable to verify or assess otherwise.

2.3 Water

2.3.1 Historical Expenditure

2.3.1.1. Overview

Council's water service operating expenditure has exceeded the levels set by IPART in the 2006 Determination. The variance between the actual expenditure and the recommended expenditure over the period from 2006/2007 to 2008/2009 is $10.5M, which represents an increase of 26%. Council's operating expenditure has varied significantly between each financial year with the greatest spend occurring in 2006/07. **Table 6** shows the variation in Council's actual operating expenditure to that proposed in the 2006 Determination.

Table 6 Water Service spend vs Determination ($ 000 2008/09 real)

	2006/07	2007/08	2008/09	Total
Determination	14,154	13,715	12,508	40,376
Actual	20,285	16,178	14,368	50,831
Variance	6,131	2,464	1,860	10,455
Variance (%)	43%	18%	15%	26%

This variance is also illustrated in **Figure 3**, which shows both historical and proposed water service operating expenditure.

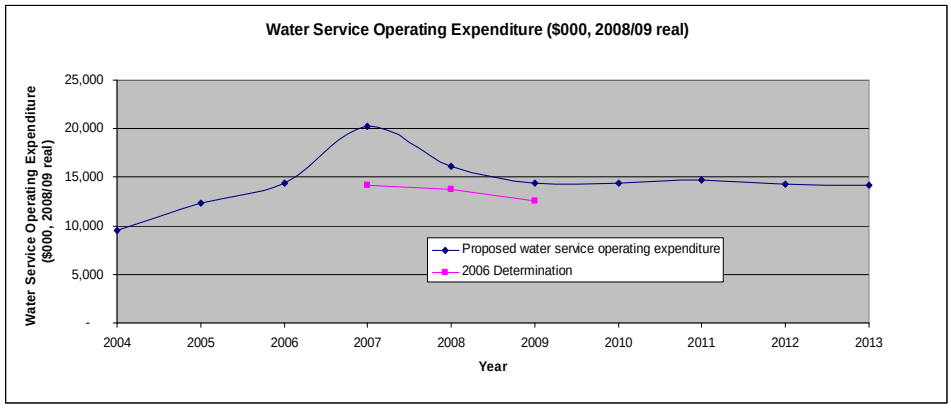

Figure 3 Water Service Operating Expenditure vs Determination ($000 2008/09 real)

2.3.1.2. Drivers for over expenditure

Council has identified the key drivers for this over-expenditure as:

- Additional costs associated with the drought;
- Electricity prices;
- Purchases of water from Hunter Water;
- Elevated response requirements as the result of water quality complaints;
- Increased expenditure associated with pumping groundwater; and
- Unbudgeted costs associated with fluoridating the water supply.

Drought Management Activities

Council has estimated that total identifiable cost of drought management initiatives over the current price period exceeds $5M. The majority of this expenditure relates to Water Program Management initiatives, which include the water tank and washing machine rebate schemes, and extensive drought related community education programs. Detailed expenditure forecasts provided to us by Council indicate that expenditure on these Water Management activities in the current Determination period is likely to total $9.0M by 2008/09. This is equivalent to an average annual expenditure of approximately $3M, which is significantly greater than the expenditure in 2004/05 ($378k) and 2005/06 ($2.03M). This increase in expenditure corresponds to the worst years of the recent drought. The key items of Water Program Management spend were:

- *Water tank rebates* – as a result of the worsening drought, the uptake of the water tank rebate scheme accelerated during 2006/07 and 2007/08 and expenditure on water tank rebates in the current Determination period is expected to total $2.04M.
- *Washing machine rebates* – Council introduced the scheme in 2006/07 and expenditure is expected to total $1.27M.
- *Community education* – expenditure by Council on communications in relation to the drought will total $1.1M by 2008/09.

Electricity Prices

Council has reported that electricity prices have contributed to the variance between the actual spend and that set by IPART in the 2006 Determination. However, from the information that Council has provided, it appears that annual expenditure on electricity by the water service in the current Determination period is approximately half of the expenditure on electricity in 2005/06.

Reduced expenditure on electricity may have occurred as a result of the drought. It is likely that reduced extraction from streams may have resulted in less pumping and water treatment (bulk water purchased from Hunter Water is already treated).

Purchases of bulk water from Hunter Water

Council's spend on bulk water during the current Determination period was $2.43M (including the budgeted 2008/09 spend). This compares to an allowance of $4.06M included in the 2006 Determination. Spend in 2008/09 is significantly lower than 2006/07 and 2007/08 due to the ongoing improvements in surface water availability on the Central Coast.

It is interesting to note that the actual cost of water purchases from Hunter Water are significantly less than allowed in the 2006 Determination, which appears to be inconsistent with Wyong Shire Council which reported additional expenditure on bulk water purchases. It is assumed that the allowance in the Determination would have been (effectively) equal.

Elevated response requirements as the result of water quality complaints

As a result of reduced storage levels and the suspension of Council's mains flushing program, water quality decreased significantly. The number of complaints received by Council increased seven-fold between 2004/05 and 2007/08. The National Performance Report for 2006/07 shows that Council received 10 times more water quality complaints in 2006/07 than all other urban water authorities of comparable size. Council incurred additional expenditure in responding to customer service complaints, an abnormally high number of compensation payments ($58k), and supplying tankers of water to dry cleaners and nursing homes. In December 2007, Council was able to recommence its mains flushing program, and expenditure is likely to total $385k by 2008/09.

Increased expenditure associated with pumping groundwater

Council's expenditure on operating its groundwater contingency schemes (JWS and other Gosford schemes) has increased from $428k/annum in 2004/05 to the current year budget of $1.24M/annum. Over the Determination period, the total expenditure on operation of the groundwater contingency scheme is expected to total approximately $3.4M. The 2006 Determination included an allowance of $3.3M an increase in groundwater. Hence, while this represents a significant increase in operating expenditure, the groundwater scheme does not account for a significant element of the overall variance between the actual operating expenditure and the allowance made in the Determination.

The groundwater contingency scheme has been reviewed in detail as part of our review of capital expenditure (refer **Section 3.4**).

Unbudgeted costs associated with fluoridating the water supply

As noted by Council in its submission, fluoridation facilities were commissioned at Somersby and Woy Woy water treatment plants in January 2008. This resulted in an increase in annual operating expenditure of $71k, primarily related to additional labour and chemicals.

State Government Water Savings Fund

Council made payments to the State Government Water Savings Fund of $1.119M in 2006/07 and $1.082M in 2007/08. The previous Determination did not include any allowance for payments to the fund.

2.3.1.3. Discussion

We have reviewed Council's historical water service operating expenditure to assess its efficiency and suitability for use at the foundation for the analysis of proposed operating expenditure. It is evident that much of the overspend during the Determination period was the result of significant expenditure on drought and demand management activities aimed at improving the security of supply. We view these items of expenditure as extraordinary. Councils operating budgets have significantly reduced since the height of the drought in 2006/07, and we would expect to see additional reductions in drought related expenditure over the coming Determination period.

Nonetheless, on the basis of the information reviewed which in some cases revealed reduced levels of expenditure, we are still uncertain of the reasons for the much of the $10.5 M overspend and are therefore unable to assess its prudence and efficiency.

As noted in **Section 2.1.3**, we are uncertain as to how Council has ensured that the significant budget overruns that occurred during the Determination period were justified and prudent in all cases. Although we have seen evidence that variations to budget were reported to senior management and Councillors, we have seen little evidence that the significant increases in budget were challenged or assessed for prudence and cost-effectiveness. This has reduced our ability to gain assurance that Council's historical levels of expenditure, particularly throughout the past few years, have been prudent and efficient.

2.3.2 Proposed Expenditure

2.3.2.1. Overview

Council is proposing a slight increase in water operating expenditure during the coming price period as compared to its 2008/09 budget. The annual expenditure is significantly lower than in 2006/07 and 2007/08, and reflects the fact that many drought related activities are no longer required, or are currently being wound down.

Council has forecast the operating expenditure for 2009/10 to 2012/13 by taking the 2008/09 budgeted and adjusting it to account for known changes to the operating environment. These include increases in expenditure associated with the increasing costs of chemicals, adjustments arising from changes to the maintenance strategy, and increasing expenditure for customer/support services.

A significant proportion of operating expenditure proposed for the water service relates to the Joint Water Supply with Wyong Council. Under the JWS agreement, Gosford and Wyong Councils each contribute 50% of the operating costs for JWS assets. JWS operating costs account for between 42-46% of Council's proposed spend for the period 2009/10 to 2012/13.

2.3.2.2. Expenditure by function

Figure 4 provides a breakdown of actual and forecast expenditure by Function. As is evident from **Figure 4**, Customer Services and Reticulation account for the majority of Council's spend.

Customer Support Services

Council is proposing to spend $22.132M on Customer/Support Services in the coming Determination period. This includes $1.43M of recycled water expenditure which Council has reported under the water service. As recycled water expenditure is excluded from the determination, it should be excluded from the water services operating expenditure.

The key expenditure within customer support services proposed for the Determination period includes:

- Water Program Management Initiatives ($3.96M);
- Asset Provision Design ($1.53M);
- Contract Consultant Training ($444k); and
- JWS Groundwater ($2.18M).

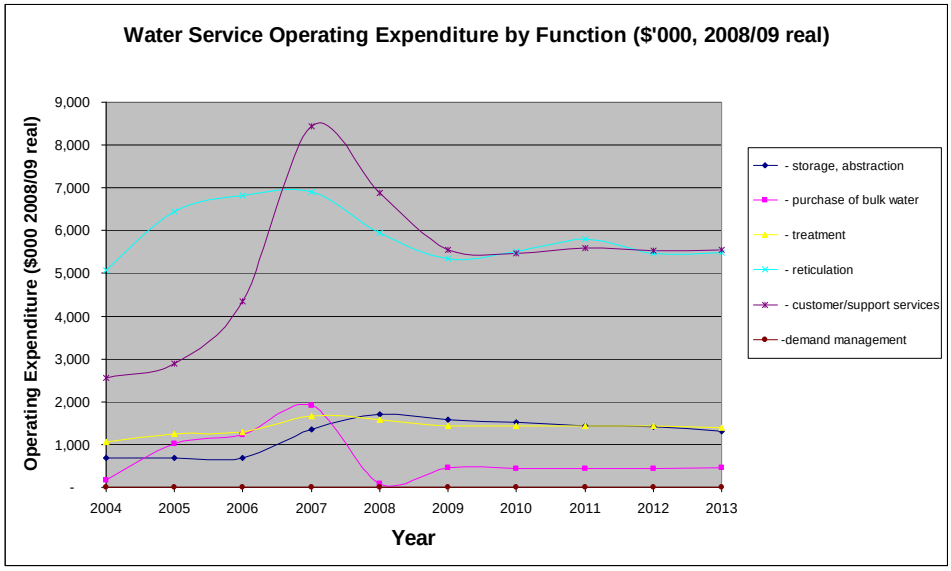

Figure 4 Water Service Operating Expenditure by Function ($000 2008/09 real)

Water Program Management Initiatives

Key expenditure items within Water Program Management include water tank rebate scheme ($591k); Water Communications ($1.24M); and Water Restrictions Project ($682k), as discussed in the following:

- *Water Tank Rebate Scheme* - Council intends to conclude its washing machine rebate program in 2008/09, and has not forecast any additional expenditure on the program after this date. However, Council has included an allowance for the water tank rebate scheme, totalling $591k in the period 2009/10 to 2012/13. Payments to customers under this program will be in addition to the rebates available to customers under the State Government's water tank rebate program. The NSW Government Rainwater Tank Rebate Program was introduced in July 2007 and provides rebates of up to $1,500 per installation. The rebate paid by Council varies depending on the size of the water tank installed with a maximum rebate of $1,000. Council has recently modified its rebate program so that its only provides rebates for tanks that connect internally. It has assumed that the financial impact of the modification to the rebate program will be neutral as the additional amount payable to internally connected tanks is estimated to be similar to the savings for no longer paying for tanks that are not connected internally.

  There is debate as to the cost-effectiveness of the water rebate program. Council's own analysis found that the cost per kL of a 5,000L internally connected water tank ranged from $3.08 to $3.70 $/kL, which compares to the current price for water of $1.67/kL (for 2008/09). On the basis of

Council's analysis, the efficiency of this expenditure is questionable. Furthermore, following completion of the Mardi to Mangrove link, we expect that cheaper sources of water will become available to Council.

Council has forecast that the annual uptake of water tanks will decrease over the Determination period, and it has forecast no expenditure in 2012/13. Minutes from the August 2008 JWS Board Meeting note the possibility that most of the residents intending to install a rainwater tank have already done so, and that this could be the reason for the reduction in the rate of tank installations despite two types of rebate currently being available.

On the basis that the NSW Government Rainwater Tank Rebate Program continues to operate, we recommend that expenditure on rainwater tank rebates be excluded from Council's operating expenditure.

- *Water Communications* – This expenditure is associated with a community education program, including advertising, community surveys and staff costs. The program commenced in 2005/06 with expenditure of $520k. With the easing of the drought, expenditure has since reduced, however, Council considers that this is a cost effective means of encouraging demand management within the community as is proposing to continue the program. Council is proposing expenditure of $309k/annum, which appears reasonable.

- *Water Restrictions Project* – Council is proposing to maintain expenditure on water restrictions at current levels and has made an allowance of $170k/annum. The expenditure essentially equates to salaries for two community field staff. Given that Council expects restrictions to remain in place in some form, we consider it reasonable to include this allowance.

Asset Provision Design

Council has included a provision of $1.53M for Water Asset Provision Design, Water Asset Planning and Water Asset Provision System Management. Council has explained that this expenditure is primarily for salaries and vehicles for asset management staff and for investigations/strategic studies of a non-capital nature (asset performance benchmarking and project accounting development or reviews of asset performance). This expenditure is in line with historic expenditure levels and appears reasonable.

JWS Groundwater

Council has proposed expenditure of $2.18M for the operation and maintenance of JWS borefields. This expenditure should actually be reported under storage/abstraction rather than the customer services category.

This scheme has reviewed in detail in **Section 3.4.** This is a Gosford led scheme, with Wyong contributing 50% of the capital and operating costs.

The operating costs for this scheme have been developed by Gosford on the basis that the bores will yield 8.95ML/d. In 2008/09, the operating costs for the scheme are budgeted at $869k (split equally between Gosford and Wyong Councils), which equates to approximately $0.27/kL. This is forecast to increase to approximately $0.36/kL over the Determination period. Approximately 37% of this expenditure is for sampling and testing of the production and monitoring boreholes, as required by the department of Water and Energy (DWE) under water extraction licences. The remaining expenditure is for operations (labour, materials and power) and maintenance.

Council has indicated that its estimated annual yield was based upon the following key assumptions:

- There is still significant uncertainty regarding future weather and climate conditions on the Central Coast and it cannot be assumed that recent rainfall will continue over the next Determination period.
- The operational strategy (yet to be finalised) for the Mardi to Mangrove transfer system aims to capture and store as much water as possible into Mangrove Creek Dam. Hence, the strategy prioritises operation of the groundwater scheme to supply customers and enable maximum streamflows from the Wyong River to be transferred to Mangrove Creek Dam.

While we accept that there is uncertainty over future weather and climate conditions, we expect that, due to the high expense of operating this scheme, use of the boreholes will reduce once the Mardi to Mangrove link becomes operational and a cheaper source of water becomes available. Once storage levels in the Mangrove Creek system recover sufficiently we would expect a significant reduction in the operating expenditure for this scheme. We recognise, however, that the water treatment plants for the groundwater sources will have to be operated regularly to ensure that they are available for use in times of need.

Other

In addition to the above, it appears as though Council has included a number of other items that require consideration in its allowances for Customer/Support Services. These are discussed as follows:

- *Dividend tax equivalent* – in 2007/08 $206k was paid as a dividend tax equivalent. Over the period 2009/10 to 2012/13, Council has forecast that this payment will be $806k. We understand that the dividend payment has been removed from the proposed expenditure. On this basis, it follows that the dividend tax equivalent should also be removed from the proposed expenditure. Council has stated that under the *Best Practice Management of Water Supply and Sewerage Guidelines*, it is required to make a dividend payment. While we accept that Council is required to pay a dividend, we are of the opinion that this payment should be paid out of profits, and not incorporated into operating expenditure.

- *Hansen Asset Management Contribution* – the implementation of this system is a Gosford City Council corporate initiative, with a funding split of 55% to the regulated water business and 45% to Council's general fund. In 2007/08 the contribution by the regulated water business was $381k. Over the period 2009/10 to 2012/13, Council has forecast a contribution of $689k split equally between water and wastewater services. The project commenced in 2006/07 and we understand that some of the first year spend was capitalised. The total project spend in 2006/07 was $432.5k; we are uncertain as to the value of spend capitalised in that year. However, since 2007/08 the expenditure associated with this project has been treated as operating expenditure, and appears within the Customer Services category.

  Council indicated that when the Gosford Wyong Water Authority forms, the Hansen system will remain the property of Gosford City Council and hence cannot be capitalised. We note that Council's 2005 submission to IPART included this project as capex. On the basis that this asset will not remain the property of Council, we consider it reasonable to classify this expenditure as operational. It is noted that the Water and Sewerage business will retain the captured data and therefore some value from the investment.

Reticulation

Council is proposing a reduction in expenditure on the reticulation system over the coming Determination period which reflects the transition to back to normal operations now that the worst of the drought has passed. The proposed annual

expenditure is between $5.5 and $5.8M, and is in line with the expenditure on reticulation in 2003/04 ($5.4M).

A review of expenditure indicates a reduction in reactive maintenance, with corresponding increases in expenditure on proactive maintenance. This is in keeping with Council's current maintenance strategy.

Treatment

Council is proposing expenditure of $5.7M on treatment over the coming Determination period. This is primarily for chemicals and maintenance. Expenditure on chemicals has increased due to the commissioning of Narara and Woy Woy groundwater systems, as well as increases in the unit rate of chemicals. Expenditure on maintenance is related to increases in expenditure at JWS treatment plants.

Storage/Abstraction

In Table 3.5 of its AIR, Council has reported expenditure of $5.69M on Storage/Abstraction over the coming Determination period. Of this, $1.85M relates to Gosford Council's share of the operating expenditure associated with the JWS groundwater scheme. Council has already included the full allowance of its share of JWS groundwater scheme operating costs ($2.18M) under Customer/Support Services. Council has indicated that it incorrectly reported this expenditure twice. We note that it would be more accurate to report expenditure associated with the JWS groundwater scheme under Storage/Abstraction. In this instance, the expenditure would become $6.02M over the Determination period.

The remainder of the expenditure reported under Storage/Abstraction primarily relates to operations and maintenance charges associated with JWS water sources.

Purchase of bulk water

Council has assumed purchases of bulk water of $447k/annum (or $1.8M over the Determination period). Council purchases bulk water from Hunter Water, Wyong Shire Council and Sydney Water.

Council has allowed $250k/annum for purchases from Hunter Water, which appears to be based on the volume of water that Hunter Water expects to sell to the Gosford Wyong Council Water Authority (GWCWA) over the coming Determination period. Council indicated that the GWCWA undertook an assessment of demand and resource yields to estimate the volume of water to be

purchased from Hunter Water over the next Determination period, however, it made a conscious decision to decrease its budget for such purchases in order to mitigate the upward pressure on water prices. Council indicates that it intends to recover the costs of any purchases above the budgeted value through the 'risk' component of its rate of return.

We note that even the reduced allowance (of $250k/annum) is a significant increase over 2007/08 expenditure ($73k), although it is substantially lower than purchases in 2005/06 and 2006/07. The recent (2007/08) reduction in expenditure on bulk transfers is due to ongoing improvements in the surface water availability on the Central Coast, which have resulted in some JWS dams overflowing during 2008/09.

The provision for bulk water purchases by Wyong Shire Council in its pricing submission is different from that of Gosford. Wyong has forecast bulk water purchases of $10.9M, which is based on the assessment of demand and resource yields noted above. This is despite the fact that any purchase from Hunter Water would be made by the GWCWA, with each Council contributing approximately 50% of the purchase price.

We understand that IPART has commissioned a separate review of consumption, which will further clarify Council's supply/demand balance over the coming Determination period. Any further assessment of expenditure on bulk water purchases should be deferred until the outcomes of the consumption review are available.

2.3.2.3. Expenditure by item

Figure 5 provides a breakdown of water service operating expenditure by item.

The key movements in expenditure within the water service have already been discussed in the paragraphs above, however, some additional key items are discussed in the following paragraphs.

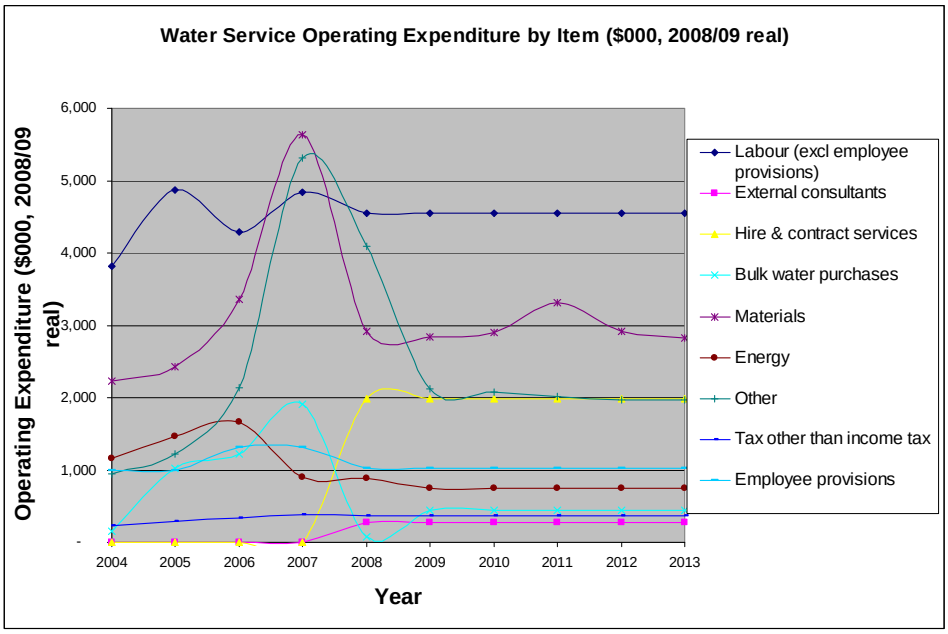

Figure 5 Water Service Operating Expenditure by Item ($000 2008/09 real)

Labour & Employee Provisions

Council has forecast that expenditure on labour will remain in line with the current levels, at $4.552M/annum. However, in its AIR submission, Council has projected an increase in full time equivalent (FTE) staff of approximately 10% between 2007/08 and 2009/09 (based on Council filling currently vacant positions rather than it increasing its headcount). Employee provisions, which include allowances for employee leave, superannuation and workers compensation are also forecast to remain in line with 2008/09 levels, at $1.024M/annum. This indicates that Council's expenditure on labour during the coming Determination period may exceed the levels that Council has proposed in its AIR. Council has indicated that it is highly unlikely that all positions will be filled at any one time and that based on its experience, staffing levels are likely to be approximately 10% below approved staffing levels. It considers that its forecast operating costs for labour and employee provisions are appropriate.

External Consultants & Hired & Contract Services

Figure 5 indicates significant increases in hired & contract services and external consultants in 2007/08. Council has indicated that an analysis of these cost categories has determined that the apparent increase is due to a change in reporting and not the result of an increase in expenditure. These costs were previously reported under 'materials' and appear elevated as they are now reported separately.

Council has undertaken an analysis of the expenditure in 'other' category for 2005/06 and has found that this includes additional 'materials and contracts' expenditure. This consequently reduces the jump in 'materials' expenditure from 2005/06 to 2006/07. The reconciliation provided by Council explains the variation and although there a still slight increase in these categories, it is substantially reduced.

2.3.2.4. Discussion

We have reviewed Council's proposed operating expenditure by identifying key cost drivers and by reviewing the general ledger accounts for Council's water service. We undertook interviews with Council staff and have identified and reviewed key documentation provided by Council.

Council is not proposing significant increases in expenditure (in real terms) from its 2008/09 budgeted spend. However, our analysis indicates that Council's proposed expenditure is higher than that approved by IPART in the last Determination. Increases in expenditure over the period were primarily due to securing Council's water supply during the extended drought. Also, additional expenditure has resulted from the operation of new capital schemes. However, we are yet to gain sufficient assurance that Council's historical levels of expenditure, particularly throughout the past few years, have been wholly prudent or efficient. This raises questions as to the prudence and efficiency of Council's operating expenditure projections. In **Section 2.7**, we have discussed some areas where we consider that there may be scope for Council to increase the efficiency of its operations.

In addition, Council has included allowances for some items of expenditure that we do not consider appropriate to include in the operating expenditure forecasts.

2.3.3 Summary

The proposed and recommended operating expenditure for water during the coming Determination period is shown in **Table 7**. The figures are exclusive of any allowances for efficiency gains.

Table 7 Proposed and Recommended Operating Expenditure ($ 000, 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Water Opex in Submission Table 3.5 AIR) – excluding corporate overhead charge.	14,374	14,727	14,284	14,200
Less				
Water tank rebate scheme	249	193	150	0
Tax dividend equivalent	201	202	201	202
Over-estimate of JWS groundwater operating expenditure	462	462	462	462
Recycled water expenditure reported under water service*	357	357	358	357
Halcrow Proposed Total	13,104	13,513	13,113	13,179

Note (*) – Operating expenditure associated with recycled water schemes is reported separately and should be excluded from the water service operating expenditure.

2.4 Recycled Water

2.4.1 *Historical Expenditure*

The previous Determination did not include any specific allowance for recycled water schemes.

2.4.2 *Proposed Expenditure*

Council has not made a pricing proposal for recycled water. Our review of recycled water expenditure has been made in the context of periodic charges and whether Gosford has made allowances for recycled water within its submission.

Council currently has water recycling treatment plants its Kincumber STP and Woy Woy STP. The Kincumber treatment plant was completed in October 2007, and the Woy Woy STP was completed at the beginning of 2008/09. Council's recycled water scheme is capable of supplying up to 85ML/annum for tanker filling and reticulated customers, including sporting fields and a concrete batching facility. Council has received approval to supply recycled water to two sporting fields and is currently in the process of finalising full approval for the recycled water scheme.

In order to segregate the costs associated with its recycled water schemes, Council has established separate accounts for the recycled water schemes within its general ledger.

Proposed operating costs for Kincumber and Woy Woy STPs have been derived on the basis that the schemes will be given full approval to operate by 2009/10. We have reviewed the operating expenditure forecast and consider the allowances made by Council reasonable. A detailed review of the water recycling schemes is included in **Section 3.5**.

As noted in **Sections 2.3.1** and **2.3.2**, Council has reported recycled water operating expenditure twice within its AIR; once under water service operating expenditure and again under recycled water operating expenditure. Our recommended operating expenditure for the water service, as shown in **Table 7** excludes recycled water.

2.5 Wastewater

2.5.1 Historical Expenditure

2.5.1.1. Overview

Council's has underspent the operating expenditure set by IPART in the 2006 Determination by $2.7M (including the 2008/09 budgeted spend). **Table 8** shows the variation in Council's actual wastewater operating expenditure to that funded in the 2006 Determination.

Table 8 Wastewater Service ($000 2008/09 real)

	2006/07	2007/08	2008/09	Total
Determination	14,922	14,702	14,593	44,216
Actual	13,351	13,170	15,041	41,562
Variance	- 1,570	- 1,532	448	-2,654
Variance (%)	-11%	-10%	3%	-6%

This variance is also illustrated in **Figure 6**, which shows both historical and proposed wastewater service operating expenditure.

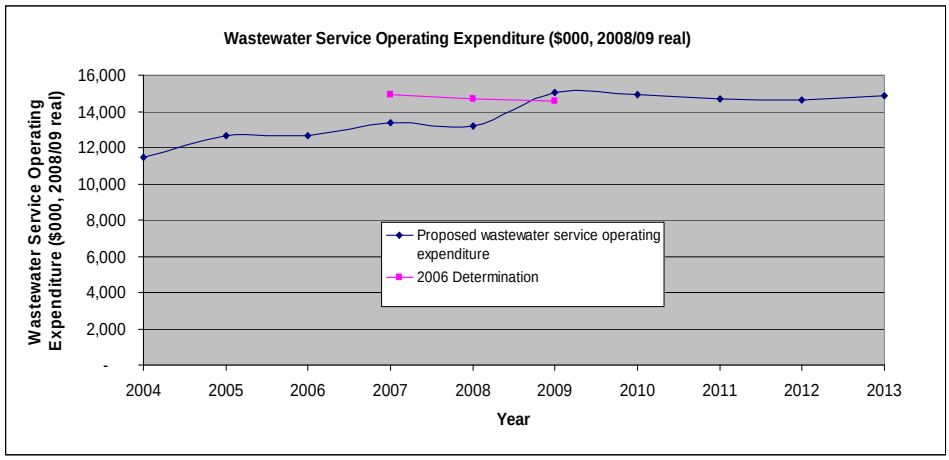

Figure 6 Wastewater Service Operating Expenditure vs Determination ($000 2008/09 real)

Council has explained that the under-spend was primarily due to the drought. Actions by Council to address the impacts of the drought required resources to be diverted from wastewater operations to water operations. For example, planned maintenance activities were deferred as crews were diverted to water service activities (repairing of leaks etc).

The significant underspends in 2006/07 and 2007/08 correspond to the worst years of the drought. Expenditure in 2007/08 was significantly below budget for the following Functions - sludge and effluent disposal by 20%; customer support by 34%, collection/treatment by 9%.

We note that there was an increase in the number of odour complaints during these years, and an elevated number of sewer chokes in 2006/07. However, there is no discernable trend and it is not readily possible to draw conclusions as to the impact of below budget spend over the Determination period. Council has explained that it intends to redress this balance in the coming Determination period. The increase in expenditure in 2008/09 indicates a return to normal operations within the wastewater service.

2.5.1.2. Discussion

We have reviewed Council's historical wastewater service operating expenditure to assess its efficiency and suitability for use as the foundation for the analysis of proposed operating expenditure. It is evident that much of the under-spend during the Determination period was the result of the drought, and Council's focus on the water service. In view of this, Council's operating budgets were noticeably reduced, particularly during 2006/07 and 2007/08. As the drought has now eased and Council has more certainty over its water supply, wastewater service operating expenditure indicates a return to more normal operations.

2.5.2 Proposed Expenditure

2.5.2.1. Overview

Council is proposing an increase in wastewater operating expenditure over current levels for the period 2009/10 to 2012/13. In its pricing submission, Council has indicated that over the last four years it has primarily focussed its activities on the drought. Now that the majority of its drought planning and management activities are complete, it intends to return its resources to managing and rehabilitating its wastewater assets.

2.5.2.2. Expenditure by function

Figure 7 provides a breakdown of actual and forecast expenditure by Function.

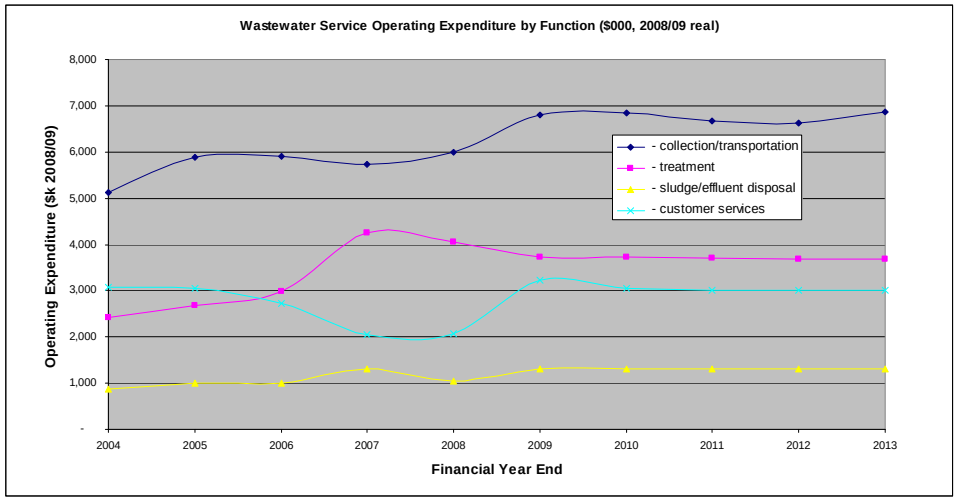

Figure 7 Wastewater Service Operating Expenditure by Function ($000, 2008/09 real)

Collection/Transportation

Council is proposing a real increase of $878k per annum, or 15% over current (2007/08) levels for collection and transportation costs. The key driver of the increase is additional spend on both proactive and reactive maintenance.

Council has indicated its intent to increase expenditure on proactive maintenance in an attempt to reduce the number of wastewater mains breaks and chokes. Its submission includes an additional $245k per annum on proactive maintenance for its wastewater mains, and $477k per annum for sewage pumping stations (SPSs). The additional expenditure is primarily related to additional field staff. We note that WSAA benchmarking (2006/07 report) indicates that Council has higher than average sewer overflows, sewer mains breaks and chokes when compared to other comparably sized water utilities.

Council expects it will take three years to complete its first round of the network. Although it has included a reduction in reactive maintenance at its SPSs (of $155k per annum as compared to 2007/08), Council is seeking an addition $274k per annum for reactive maintenance of wastewater mains. Although we expect a reduction in reactive maintenance requirements as a result of its proactive maintenance program, Council does not expect that this will become evident in the coming Determination period. We consider the additional expenditure reasonable although expect a reduction in reactive maintenance towards the end of the Determination period.

Treatment

Council is not forecasting any significant changes to its expenditure on wastewater treatment. From the information provided by Council, the significant increase in expenditure between 2005/06 and 2006/07 appears to be due to a change in the classification/categorisation of expenditure as opposed to a real increase. A comparison on annual expenditure from 2007/08 to 2012/13 shows that Council is proposing reductions in expenditure in septicity control, electricity and reactive maintenance activities. Expenditure on general operations and its Kincumber and Woy Woy treatment plants is expected to increase marginally over the period 2009/10 to 2012/13.

Sludge/effluent disposal

Council is proposing a real increase of approximately $ 247k per annum, or 23%, in sludge treatment expenditure. Council has indicated that this is primarily backlog sludge management costs to reduce site holdings at both the Kincumber and Woy Woy Sewage Treatment Plants (STPs).

Customer Services

Council reported a significant jump in Customer Services expenditure in 2008/09 (approximately 55%), and it is proposing to maintain expenditure at these levels (approximately $3M/annum) over the period 2009/10 to 2012/13. Customer Services expenditure includes a number of key items, each of which is discussed below:

- *Operating expenditure related to Council's Asset Management and Planning Team* - expenditure has increased from approximately $647k in 2005/06 to a proposed expenditure of $1.23M in 2009/10. We understand that much of this expenditure relates to salaries and wages. Council indicated that some of this increase in expenditure is due to additional salaries following the filling of vacant positions. Historically, some expenditure from these accounts has been capitalised, however, Council has indicated that any future capitalisation from this account is likely to be immaterial. We recommend that Council maintains a record of all expenditure funded as operating expenditure in the Determination which is subsequently capitalised to enable future adjustments.

- It appears as though Council has included an allowance for 'transfer to asset replacement reserve' of $697k over the period 2009/10 to 2012/13 within Customer/Support Services (GL Account S4005.766). During the interviews, Council explained that 'transfer to asset replacement reserve' accounts were

set up to transfer any profits to cover times of low revenue. Council has since indicated that this GL account is incorrectly named and that the expenditure does not relate to transfers but that it is legitimate customer services operating expenditure. We have been unable to verify the nature of this expenditure before the finalisation of this report.

2.5.2.3. Expenditure by item

Figure 8 provides a breakdown of actual and forecast expenditure by Item.

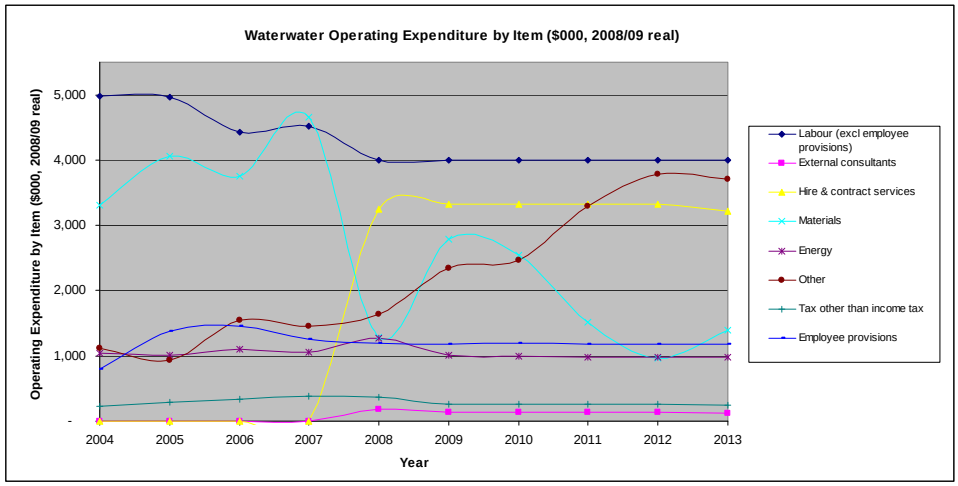

Figure 8 Wastewater Service Operating Expenditure by Item ($000, 2008/09 real)

The key movements in expenditure within the wastewater service have already been discussed in the paragraphs above. However, some key expenditure 'Items' are discussed in the following paragraphs. As Council does not record or report operating expenditure by IPART's AIR/SIR 'Item' categories, it splits out much of the total operating expenditure between each category on a proportional basis. Where expenditure can easily be directly allocated, this is done.

External Consultants & Hired & Contract Services

The above graph indicates significant increases in Hired & Contract Services and External Consultants in 2007/08. As with the water service, we understand that the apparent increases in these categories is due to a change in reporting and not the result of an increase in expenditure. These costs were previously reported in under 'materials' and appear elevated as they are now reported separately.

Other

Council is reporting significant increases in 'Other' expenditure over the coming Determination period. We have identified a number of issues with the expenditure provided for in this category, as follows:

- *Divided tax equivalent* – in 2007/08 $400k was paid as a dividend tax equivalent. Over the period 2009/10 to 2012/13, Council has forecast that this payment will be $710k. We understand that the dividend payment has been removed from the proposed expenditure. On this basis, it follows that the dividend tax equivalent should also be removed from the proposed expenditure. We have been unable to confirm what 'Function' this expenditure has been allocated to although it appears that some of the expenditure has been reported under Customer/Support Services. Council has stated that under the *Best Practice Management of Water Supply and Sewerage Guidelines*, it is required to make a dividend payment. While we accept that Council is required to pay a dividend, we are of the opinion that this payment should be paid out of profits, and not incorporated into operating expenditure.

- *Transfer to asset replacement reserve and revenue fluctuation reserve* – Council has included an allowance of $4.023M over the period 2009/10 to 2012/13 for transfers to asset replacement reserve and $3.452M for transfer to the revenue fluctuation reserve. During the interviews with Council it was explained that the transfer to asset replacement reserve and revenue fluctuation reserve are accounts that were set up to transfer any profits to cover times of low revenue. Council has since stated that transfers to the reserves do not form part of its proposed operating costs. It has indicated that the total operating costs for the wastewater service as reported in the AIR/SIR are correct, and that the expenditure allocated to 'transfers' represents and imbalance in the allocation by Item as compared to allocation by Function.

- *Hansen Asset Management Contribution* – the implementation of this system is a Gosford City Council corporate initiative, with a funding split of 55% to the regulated water business and 45% to Council's general fund. In 2007/08 the contribution by the regulated water business was $381k. Over the period 2009/10 to 2012/13, Council has forecast a contribution of $689k split equally between water and wastewater services. The project commenced in 2006/07 and we understand that some of the first year spend was capitalised. The total project spend in 2006/07 was $432.5k; we are uncertain as to the value of spend capitalised in that year. However, since 2007/08 the expenditure associated with this project has been treated as operating expenditure, and appears within the Customer Services category.

Council indicated that when the Gosford Wyong Water Authority forms, the Hansen system will remain the property of Gosford City Council and hence cannot be capitalised. We note that Council's 2005 Submission to IPART included this project as capex. It is noted that the Water and Sewerage business will retain the captured data and therefore some value from the investment.

Labour & Employee Provisions

Council has forecast that expenditure on labour will remain in line with the current levels, at $3.998M/annum. However, in its AIR submission, Council has projected an increase in full time equivalent (FTE) staff of approximately 11% between 2007/08 and 2009/09 (based on Council filling currently vacant positions rather than it increasing its headcount). Employee provisions, which include allowances for employee leave, superannuation and workers compensation are also forecast to remain in line with 2008/09 levels, at $1.187M/annum. This indicates that Council's expenditure on labour in the coming Determination period may exceed the levels that Council has proposed in its AIR.

2.5.2.4. Discussion

As with the water service, we have reviewed Council's proposed operating expenditure by identifying key cost drivers and by reviewing the general ledger accounts for Council's wastewater service. We undertook interviews with Council staff and have identified and reviewed key documentation provided by Council.

Council is not proposing significant increases in expenditure (in real terms) from its 2008/09 budgeted spend. Our analysis indicates that Council's proposed expenditure is only marginally higher than that approved by IPART in the last Determination. However, Council has included allowances for some items of expenditure that we do not consider appropriate to include in the operating expenditure forecasts.

2.5.3 Summary

The proposed and recommended operating expenditure for wastewater during the coming Determination period is shown in **Table 9**. The figures are exclusive of any allowances for efficiency gains.

Table 9 Proposed and Recommended Wastewater Service Operating Expenditure ($ 000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Wastewater Opex (Table 3.5 AIR) – excluding corporate overhead charge.	14,908	14,695	14,631	14,870
Less				
Dividend tax equivalent	185	180	175	170
Halcrow Proposed Total	14,722	14,515	14,456	14,700

2.6 Stormwater

2.6.1 Historical Expenditure

Council's has exceeded the stormwater operating expenditure funded by IPART in the 2006 Determination by $1.5M (or 14%). **Table 10** shows the variation in Council's actual stormwater operating expenditure to that funded in the 2006 Determination.

Table 10 Stormwater Service ($000 2008/09 real)

	2006/07	2007/08	2008/09	Total
Determination	3,621	3,621	3,511	10,752
Actual	4,057	4,126	4,038	12,221
Variance	437	505	527	1,469
Variance (%)	12%	14%	15%	14%

This variance is also illustrated in **Figure 9**, which shows both historical and proposed stormwater service operating expenditure.

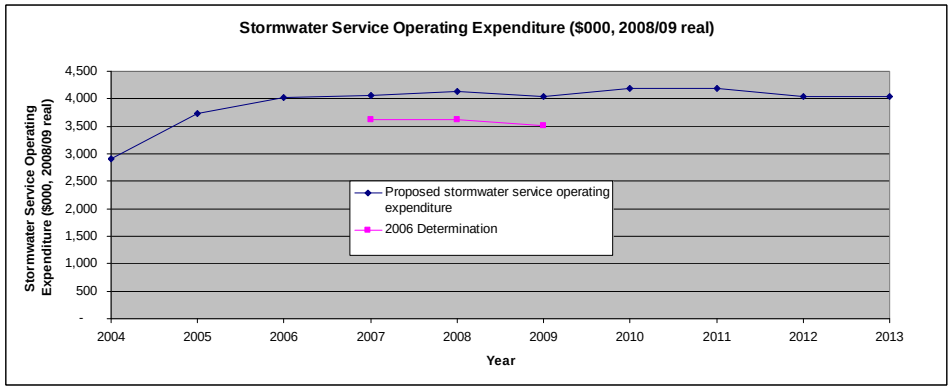

Figure 9 Stormwater Service Operating Expenditure vs Determination ($000 2008/09 real)

A review of actual expenditure in the period from 2005/06 indicates a significant increase in repairs and maintenance expenditure after 2005/06. The increase accounts for an additional $400k per annum, and it includes the impact of increases in tipping costs, which doubled between 2007/08 and 2008/09. The information provided by Council during the review is consistent with the explanation provided in its pricing submission, which states that the increase in repairs and maintenance expenditure is primarily associated with water sensitive urban design schemes (which have more involved maintenance programs).

2.6.2 *Proposed Expenditure*

Council is not proposing any material changes to expenditure associated with stormwater operations, and the proposed operating expenditure is generally in line with 2006/07 levels. **Table 11** shows Council's proposed operating expenditure for the Stormwater Service.

Table 11 Proposed Stormwater Service Operating Expenditure ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Stormwater Operation	4,188	4,189	4,039	4,038

In the AIR Council has reported negative expenditure in the customer services line for the Stormwater Service. This adjustment relates to recycled water. Council has put this negative adjustment in as a balancing item as it has incorrectly included recycled water twice within **Tables 3.3 and 3.4** of its AIR (once within recycled water and once within conventional water). Our review of the stormwater service has excluded this expenditure (i.e. we have assumed zero expenditure in the customer services line).

Figure 10 provides a breakdown of actual and forecast operating expenditure by Item (it excludes the allocation of corporate overhead, which has already been discussed in the **Section 2.2**).

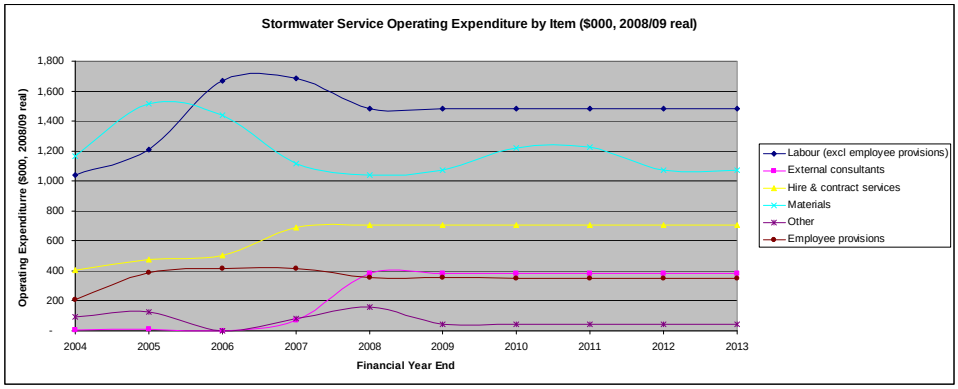

Figure 10 Stormwater Service Operating Expenditure by Item ($000, 2008/09 real)

As seen from **Figure 10**, 'materials' is the only item where Council is proposing an increase in expenditure. This is related to expenditure of $150k/annum in 2009/10 and 2010/11 for collection of asset management data. We understand that this information will be fed into Council's new asset management system.

Council reported an increase in expenditure on Hired & Contract Services and External Consultants in 2007/08. It is proposing to maintain expenditure at 2007/08 levels over the coming Determination period. Based on our review, it appears that much of this expenditure (approximately $188k/annum) relates to flood studies. These studies enable Council to better understand flooding risks in its area of operations and prioritise stormwater planning activities.

Expenditure on labour increased in the first years of the current Determination period, but has fallen in 2008/09. Council is not proposing any increase in staff numbers for stormwater related activities. We note that the reduction in labour expenditure in 2008/09 corresponds to an increase in hired and contract services.

On the basis of our review, we consider the proposed increases in stormwater operations expenditure reasonable.

2.6.3 Summary

The proposed and recommended operating expenditure for stormwater during the coming Determination period is shown in **Table 12**. The figures are exclusive of any allowances for efficiency gains.

Table 12 Proposed and Recommended Stormwater Service Operating Expenditure ($ 000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Stormwater Opex (Table 3.5 AIR) – excluding corporate overhead charge.	4,188	4,189	4,039	4,038
Halcrow Proposed Total	4,188	4,189	4,039	4,038

2.7 Benchmarking and Efficiency

2.7.1 *Benchmarking*

Council participates in Water Services Association of Australia (WSAA) benchmarking. The National Performance Report for 2006/07 ranks Council against other urban water authorities of comparable size for a number of performance indicators. Out of nine urban water authorities reported on, Council was ranked 6th (lowest) in terms of real operating cost per property for water and sewerage operating cost. Although only limited conclusions may be drawn from such benchmarking studies, the results indicate that there may be an opportunity for Council to increase productivity over the current levels. **Table 13** provides the results of this analysis.

Table 13 Real combined water and sewerage operating cost ($/property)

	2005/06	2006/07
Gosford	571	570
Logan Water	537	571
Cairns Water	560	503
Coliban Water	509	502
Maroochy Water	-	688
Gippsland Water	747	820
Wyong	518	597
Central Highlands Water	518	390
Goulburn Valley	584	612

Source: National Performance Report 2006-2007 Urban Water Utilities - WSAA

2.7.2 *Efficiency*

In its pricing submission, Council has proposed efficiency savings for the water and wastewater services. No efficiency savings have been offered for the stormwater service. The efficiencies proposed are 0.5% in year one, 0.5% in year two of the price period, and a further 0.25% in year three (cumulative). We note that these efficiency savings have only been incorporated into Council's AIR submission for the period 2009/10 to 2011/12. No deductions to operating expenditure for efficiency have been included in the AIR for 2012/13. Council has indicated that it is currently unsure of where these efficiency savings might be made, although it intends to undertake a review during the current financial year.

While we acknowledge Council's proposed efficiency targets, we are of the opinion that there may be greater scope for Council to achieve efficiency savings within its operating budget. In its previous Determination, IPART factored efficiency savings of 1.2% per annum into Gosford's determined operating expenditure. However, Council indicated that it had not set any internal efficiency targets for its operating expenditure budget in the current Determination period; and that any efficiency gains in the current Determination would have been consumed by expenditure to address the impacts of the drought. While we accept that this may be the case in some instances, we do not accept it to be true for operating expenditure. Furthermore, Council's practice of setting its annual budgets by rolling forward the previous years' spend, making adjustments for material changes to the operating environment, means that there has been little incentive with the business to identify potential savings from the operating budget.

Nonetheless, the third year target proposed by Council appears to be in accordance with industry trends and we acknowledge that some initial adjustment will be required for Council to commence implementation of efficiency measures. We would, however, expect some reasonable improvement in the first year and have adjusted Council's forecast accordingly, as shown in **Table 14**. Furthermore, we would expect the gains to be realised across the whole of the regulated business, i.e. including the stormwater service.

Table 14 Proposed and Recommended Efficiency Savings

	2009/10	2010/11	2011/12	2012/13
Council Proposed*	0.5%	1.0%	1.25%	1.25%
Halcrow Recommended	0.75%	1.0%	1.25%	1.25%

Note (*) - Although proposed, Council did not apply the efficiency target in 2012/13

During the interviews, Council indicated that it is intending to review opportunities within its sewerage service where it may work with Wyong Shire Council in order to increase operational efficiency and reduce overall expenditure. The focus will be on catchments close to the boundary with Wyong. As this review is yet to be undertaken, Council's submission has not factored in any savings that may result from joint operations. We recommend that Council expedites this review, particularly given the State Government's intentions to create the Central Coast Water Corporation.

2.7.3 *Operating Efficiencies arising from Capital Projects*

While there may be potential for operating efficiencies to arise from some of Council's capital projects, Council's existing capital planning processes do not currently facilitate the collection or reporting of this information. As such, it is impossible to identify or accurately quantify what these operating efficiencies might be.

Some examples of where operating efficiencies would be expected as a result of implementing capital projects include the following:

- Mooney Mooney WPS Pump Renewals – renewal (replacement) of pumpsets would be expected to result in operational efficiencies through:
  - reduced maintenance activity required to keep the pump in operational condition; and
  - improved pump efficiency resulting in reduced power consumption.
- Sewer Gravity Mains/Renewals – renewal of pipelines would be expected to result in operational efficiencies due to reduced maintenance activity in response to breaks and chokes.

Our experience shows that many water companies/agencies experience difficulties with the quantification of operational efficiency gains from capital projects. Discussions have revealed a number of issues such as:

- the life cycle continuum, ie as one asset is replaced (and requires less maintenance activity), another requires further maintenance as it ages; and
- capital replacement projects may result in the introduction of new technologies which, in some instances, may result in additional maintenance activities/costs.

Nonetheless, it is prudent that some understanding of the operational efficiencies gained through the implementation of capital projects be derived and used in the ongoing capital planning processes. A minimalist approach would be the use of post implementation reviews to assess and gain an appreciation of the impacts of various types of capital projects.

2.8 *Recommended Operating Expenditure Projections*

Council's proposed and Halcrow's recommended operating expenditure for the price path period 2009/10 to 2012/2013 is summarised in **Table 15**. The figures include allowances for efficiency gains.

Table 15 Proposed and Recommended Operating Expenditure ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Council Submission (Table 3.5 AIR)				
Corporate Overheads	8,882	8,919	8,959	8,959
Water	14,374	14,727	14,284	14,200
Wastewater	14,908	14,695	14,631	14,870
Stormwater	4,188	4,189	4,039	4,038
Total Proposed Opex (efficiency included)	**42,352**	**42,530**	**41,913**	**42,067**
Efficiency already applied to water	98	198	248	-
Efficiency already applied to wastewater	97	195	244	-
Total Proposed Opex (pre-efficiency)	***42,548***	***42,923***	***42,404***	***42,067***
Halcrow Recommended				
Corporate Overheads	8,388	8,422	8,460	8,460
Water	13,104	13,513	13,113	13,179
Wastewater	14,722	14,515	14,456	14,700
Stormwater	4,188	4,189	4,039	4,038
Recommended Opex	40,403	40,639	40,068	40,377
Halcrow Recommended adjusted to add back Council's efficiency allowance				
Corporate Overheads	8,388	8,422	8,460	8,460
Water	13,202	13,711	13,361	13,179
Wastewater	14,820	14,710	14,700	14,700
Stormwater	4,188	4,189	4,039	4,038
Recommended Opex	**40,598**	**41,032**	**40,559**	**40,377**
Efficiency Allowance (%)	0.75%	1.00%	1.25%	1.25%
Efficiency Allowance	304	410	507	505
Halcrow Recommended Opex (efficiency included)				
Corporate Overheads	8,325	8,338	8,354	8,354
Water	13,103	13,574	13,194	13,014
Wastewater	14,709	14,563	14,516	14,516
Stormwater	4,157	4,147	3,988	3,988
Total Recommended Opex (efficiency included)	***40,293***	***40,622***	***40,052***	***39,872***

3 Capital Expenditure

3.1 Asset Management Framework

In May 2008 Council produced a Water and Sewerage Services Capital Works Plan. It is a high level document that will aid Council in developing its future strategy to improve its capital planning processes in step with improvements to the way asset data is captured, managed, analysed and utilised, particularly in relation to condition and performance monitoring. Council's intention is to develop a comprehensive Asset Management Framework, based on an Integrated Planning Framework model approach, in order to inform and determine its capital works program.

The Asset Planning team at Council has been focussing on developing the strategy framework it will use for wastewater. The water and stormwater frameworks are currently at an early stage of development. Council intends to develop Management Plans, underpinned by performance monitoring of assets, for each business area (water, wastewater, stormwater and recycled water). Examples of management plans for wastewater include Wastewater Quality, an Environmental Plan for Wastewater Management, Stakeholder Impacts, Asset Capacity, Asset Loading and Inflow/Infiltration/Ex-filtration. These Plans are intended to outline the actions to be taken in future and their timing and priority. We understand that the Inflow/infiltration list of actions is almost ready for use and is an example of what to expect for the rest of the program.

For the Management Plans to be effective and generate the future Capital Works program, a comprehensive information system is necessary to manage the asset data required. To support the information requirements of such a system, Council recently installed a new SCADA telemetry system called 'Simplicity'. Amongst other things, it is used to monitor overflows to the environment which must be reported to the EPA. The SCADA system also informs Wastewater Operations of such events (or the potential for them) by monitoring flows. Trigger alarms enable Wastewater Operations to manage these events more quickly and effectively.

Other information systems, such as the GIS, are required to support Council's Asset Management framework. To date, the GIS system has been populated with 91% of wastewater assets. There is an ongoing data capture program involving two temporary employees dedicated to the task for both water (particularly main breaks and repairs information) and wastewater assets. The GIS system is important as it provides Asset Planning with a means to locate and target proactive

asset condition/performance assessment programs and initiatives, eg. CCTV surveys or asset data verification investigations.

The GIS system also supports the implementation of hydraulic network modelling of water and wastewater networks which can be used to model the impact of changes to levels of service or growth. Council uses computer based hydraulic network models for major areas of concentration, such as the CBD areas of Gosford and Woy Woy, which will be subject to a high growth rate from now until approximately 2030. The network model has been generated, verified and run according to a number of scenarios to determine what solution options are available to Asset Planning. In this way the model aids future investment planning for the water and wastewater networks.

Regionally, Council only has a strategic water network model. We understand that it requires further development to increase the level of detail and accuracy to which it represents the full network. This will involve calibration (from field data logging etc) and updating the values for pressure, friction loss and flow assumptions.

Council has purchased a computer software package called Hansen Asset Management which, in combination with the recently updated GIS package, is expected to provide it with the capability it needs to implement an integrated Asset Management system. Hansen is commonly used by councils in Australia and New Zealand, and in our experience it works well. However, the population of both the Hansen and the GIS systems is still at an early stage.

It is intended that Hansen will be rolled out to the whole of Council's asset portfolio, including areas such as Fleet Services, and Council has employed dedicated staff to implement it. In the past 12 months, Council has implemented Hansen to a stage where its Customer Service system, its financial system and GIS system all interface with Hansen. Information can now be captured and stored accordingly and the facility to populate/import historical data has been implemented. Hansen includes works management and Council is now in a position to link work orders to assets, which in future will inform the capital works program.

In order to determine which assets require investment, both now and in the future, the Asset Planning team has developed a strategic level investment program budget for the next 30 to 40 years. The strategic investment program budget is derived by asset classes and their associated expected lives which determine the asset replacement timing. In practice, asset condition is then used at a smaller scale to decide which asset gets replaced and at what time. In the absence of other

condition data, performance data (eg. pipe burst history) is often used as an indictor of poor condition. The cost estimates used to derive the budgets are based on historical cost data for various asset types, either from Council's own records or others in the region.

Projects are managed through the Project Summary Database which can provide monthly reports on project status. It is linked to the financial information systems and can be used to track project completion and budget status, however, project approvals cannot currently be managed through this database. Budget level information can be reported and Council plans to incorporate the IPART Determination information into the system in the near future. **Section 3.2** includes further discussion on capital planning and the process followed in respect to project approvals.

As Council's new systems are not yet at a stage of implementation where they can be used effectively, the benefits to Council's Asset Planning framework have been limited to date. As a result of the drought, we understand that resources have been focussed on supporting investment decisions and implementation of solutions aimed at addressing water quality problems, pressure management, network leakage and odour from sewers.

Overall, Council has started to implement Asset Management Information and Management systems. However, the systems are yet to be integrated into the capital planning framework such that they can be used to inform the capital investment program. As more asset data and condition and performance information is actively sought and becomes available over the next few years, we believe that Council should be in a better position to inform it asset management systems. In turn, this will systematically influence the direction of its capital program. We would expect that this would be evident by the next Determination.

3.2 Capital Planning, Procurement and Project Prioritisation

Council appears to practice a relatively simplistic 'top-down/bottom-up' approach to capital works planning.

We found that, for each of the service areas, Council establishes a strategic budget over a 20-30 year planning horizon. The budgets for each program area are based on 'life cycle costing' for the various asset types that primarily take into account the current age and expected asset life.

The capital program for each service area is then built up on a bottom-up basis to generate a list of projects that 'fit' within the strategic budget for that year. We found that budgets are reviewed on an annual basis to reflect changing developments and priorities, although there is not yet a sound asset management framework in place to inform these decisions.

The risk with this approach is that investment, beyond the needs fundamental to the running of the water business, could be generated to fit annual budgets. We saw evidence of this during our detailed review of individual projects. This is further evidenced through the development of programs of work that have proven difficult to physically deliver within the available timescales.

In determining the value of each program budget, high level costs are generated using historic unit cost rates of similar activities previously undertaken, inflated by CPI.

We found that Council maintains a more detailed three year rolling program whereby further analysis of the different classes of assets is undertaken in the short to medium term in order to identify specific projects that will help maintain levels of service and regulatory requirements. However, we believe this program is similar to that described above, with plenty of flexibility built in to respond to unexpected events.

We found that the process by which projects are funded from the strategic and detailed budgets is managed through the Project Funding Request System as follows:

- identify the investment need and enter it into the Project Summary Database to generate a project ID number and fully define the project;
- generate a Project Summary Report from the database to support the funding request;
- Project Funding Request Form (PFR) is populated to formulate the Business Case;

- the PFR is reviewed by the Asset Planning Manager and/or head of Asset Management depending on the project funding requirements;
- the Finance department verifies the funding request;
- the Director of Water signs off on the PFR (within certain delegation limits); and
- further approval may be required by Council for high cost and/or high risk projects.

We note that Council uses block allocation projects within it capital program. These generic projects allow for expenditure against a yet to be determined outcome, which makes it difficult to demonstrate its efficiency or effectiveness and need to be further minimised in a regulated environment.

Whilst the current processes ensure all proposals are subject to public consultation, it does not lead to a robust understanding of customers' willingness to pay and the trade off between the improvement in service offered and the prices paid.

In undertaking our review of the capital planning process, we queried the mechanisms within the process to drive efficiency and promote further cost effectiveness, but found this to be a low priority within the Council at this stage.

3.3 Capital Expenditure Review

Table 16 shows Council's proposed expenditure profile for delivery during the 2009 Determination.

Table 16 Proposed Capital Expenditure ($000, 2008/09 real)

2009 Determination	2009/10	2010/11	2011/12	2012/13	Total
Water	57,992	21,973	6,155	16,372	102,492
Wastewater	28,091	21,059	22,170	13,791	85,111
Stormwater	6,102	5,559	5,066	5,813	22,541
Total Capex (gross)	92,185	48,591	33,392	35,976	210,144
Less grants and contributions					
Water	(22,428)	(19,750)	(1,362)	(1,482)	(45,022)
Wastewater	(858)	(1,179)	(1,165)	(911)	(4,113)
Stormwater	(4,223)	(3,725)	(3,344)	(543)	(11,835)
Total Grants and Contributions	(27,509)	(24,654)	(5,871)	(2,936)	(60,970)
Total Capex (net)	64,676	23,937	27,521	33,040	149,174

Within the proposed program, expenditure has been split between the various expenditure drivers shown in **Table 17**.

Table 17 Proposed Capital Expenditure by Driver ($000 2008/09 real)

Driver	2009/10	2010/11	2011/12	2012/13	Total
Growth - Other	59,350	30,476	13,074	7,054	109,953
Growth - Developer	1,683	1,452	1,595	1,972	6,703
Mandatory	21,916	6,947	7,367	8,076	44,306
Discretionary	8,795	9,408	11,049	18,589	47,842
Business Efficiency	442	308	307	285	1,342
Total Capex (gross)	92,185	48,591	33,392	35,977	210,145

As part of our review of Council's proposed capital expenditure program, we undertook to complete a detailed examination of a representative sample of projects, either being currently delivered or proposed for delivery during the 2009 Determination period.

Using a selection criterion based primarily on project driver and project value (i.e. projects with a value > $1M), we selected thirteen projects for detailed review, as shown in **Table 18**.

Table 18 Capital Expenditure Scheme Selections ($000 2008/09 real)

Project Title	Program Area	Project Number	Actual & Proposed Spend 06/07 - 08/09	Forecast Spend 2008/09 to 2012/13	Total to 2012/13
JWS - Hunter Water Connection	Water	W5702	14,247	-	14,247
JWS – Groundwater Extraction Projects	Water	W5720 – W5731	14,864	-	14,864
JWS - Mardi to Mangrove Transfer System	Water	W5702	12,257	41,786	54,043
Gosford CBD Reticulation Upgrade - Water	Water	W5306	190	631	821
Water main replacement Peats Ferry Bridge	Water	New	1,000	0	1,000
General Water Main Replacement Program	Water	-	3,941	9,225	13,166
Gosford CBD – Recycled Water Scheme	Recycled Water	W6705	Commercial in Confidence		
JWS – Gosford Water Factory	Recycled Water	W6705	Commercial in Confidence		
JWS – Woy Woy Water Recycling Plant	Recycled Water	W6707	Commercial in Confidence		
Terrigal to Kincumber Augmentation	Wastewater	S308	1,659	36,179	37,838
Gosford CBD Retic Upgrade - Wastewater	Wastewater	S5306	190	1,169	1,359
Hawkesbury Village PSP – Stage 1	Wastewater	S5300	13,964	393	14,357
Terrigal CBD Urban Flood Mitigation	Storm water	E7144	240	945	1,185

When compared to the overall capital program for the water business, the above projects represent 45% of the program in terms of capital value (excluding recycled

water). When considering each of the separate program areas, the selected projects of represent 51%, 41%, and 7% the water, wastewater and stormwater programs respectively.

In completing our detailed reviews of the above projects, we sought to:

- Identify the need for the project.
- Identify the key drivers for investment and identify how the expenditure has been allocated.
- Understand the approach to solution development adopted; identify the alternative options considered and the basis for the preferred solution.
- Understand the basis of the cost build-up and whether any contingencies or allowances have been applied to capital expenditure forecasts.
- Understand the proposed method of procurement and the delivery profile of the project.
- Identify the proposed outputs of each project.
- Assess the prudence and cost effectiveness of each project.

Our detailed project descriptions are included in **Appendix B**, however, we have summarised our findings and recommendations within the relevant program areas in the following sections.

3.4 Water

3.4.1 *Historical Expenditure*

Within its 2006 Determination, Council agreed to deliver a defined program of works against the agreed delivery profile, as shown in **Table 19** below. Council is, however, forecasting a significant level of overspend.

Table 19 Water Service Capital Expenditure vs Determination ($000 2008/09 real)

	2006/07	2007/08	2008/09	Total
Determination	32,038	7,351	4,718	44,107
Actual (Table 9.1 AIR/SIR)	30,231	22,295	36,527	89,054

Of the six separate water projects chosen for review (refer **Table 18**), the following three projects will be delivered during the current Determination period and have incurred significant spend to date:

- JWS - Hunter Water Connection;
- JWS – Groundwater Extraction Projects; and
- Watermain Replacement – Peats Ferry Bridge

For each of the projects we have provided a brief summary of our findings, including our assessment of prudence. A detailed project description is also included in **Appendix B**.

JWS – Hunter Water Connection

Summary of Project

During the early period of the drought, the Hunter Connection was originally designed to provide 6ML/d of treated water supply from the Hunter Water Corporation (HWC) area to the Gosford/Wyong (JWS) area. As the drought worsened, the strategic importance of the Hunter Connection became more apparent and an increase in capacity of the connection up to 14ML/d, 26ML/d and finally 33ML/d (with another 2ML/d to come in future) was pursued to improve security of supply (primarily for Gosford/Wyong) due to the drought. The added benefit came from enabling HWC to also draw treated water into its system from the JWS area in times of need. An operational arrangement was negotiated and a 20 year contract, which outlines the constraints of use for the connection, was signed.

There were four main scheme pipeline components:

- Wyong to North Wyong - at Gosford Wyong Councils Water Authority (GWCWA) cost;
- North Wyong to Bushells Ridge to Morrisett - shared cost GWCWA/HWC;
- Hunter system north of Morrisett - at HWC cost; and
- Additional section in the north of HWC's area - shared cost GWCWA/HWC.

The latter component also included modifications to the water treatment plant (step screen and pumping station) to provide a more reliable and secure quality of supply.

Cost Comparison

According to Wyong Council's pricing submission, the total projected capital cost for the project was $39.73M and it was delivered under this for $36.23M. Costs were apportioned between Gosford and Wyong Councils in accordance with the JWS Agreement. The scope increase caused a doubling of the costs from the figure of $17.97M reported to IPART in 2005. This was due to the need to increase the transfer rate up to 33ML/d (works completed in 2007/08 to 2008/09) to provide drought relief and also works to improve and ensure transfer reliability (security of supply). The scheme was also contributed towards by the Federal Government under a WaterSmart grant to the value of $4M.

Assessment of Prudence

Given the need for drought relief to be delivered quickly during the course of the worst drought on record in particular, and the fact that other resource options such as desalination and groundwater were less viable or more expensive, the Hunter Connection project was the one major alternative resource that the GWCWA could rely on during this time to supply customers in the Gosford/Wyong area. We therefore believe that the project was a prudent choice to address the water shortages of the drought. Subsequent yield increases and additional security/reliability measures incorporated into the project since the last Determination have doubled the cost of the project. We see that this approach, as adopted, compliments the strategy outlined in Water Plan 2050 and provides security of supply in the future to both the JWA and Hunter Water initially for a period of 20 years under the current agreement.

JWS – Groundwater Extraction Projects

Summary of project

In order to potentially increase the available water supply yield, the GWCWA undertook a widespread investigation of the region to determine the availability of reliable groundwater supplies.

In total, 110 test boreholes were drilled across the region from the coast to the hinterland, and 7 separate bore fields (producing a reliable yield of approximately 7ML/d) were identified.

For each of the bore fields, a variety of options were considered. Whilst transfer options were adopted for most sites, a standalone 'Ultra' filtration plant was proposed for Woy Woy, with pre-treatment for iron, manganese, colour and turbidity.

Cost comparison

When compared to the 2005 Determination and the subsequent IPART expenditure review (2006), forecast levels of expenditure have escalated significantly. As demonstrated in **Table 20**, forecast costs have increased by 38% since the last review in 2006 and 83% since the 2005 Determination.

Table 20 Groundwater Scheme Capital Expenditure vs Determination ($000))

Expenditure	2004/05	2005/06	2006/07	2007/08	2008/09	Total
2005 Determination	1,130	1,700	1,700			4,530
2006 Determination (May 2006)	5,580	7,130	3,080	1,100		16,900
Actual and budgeted scheme expenditure	5,580	6,640	11,060	3,803	~1,000*	27,085

* Not included in AIR but deemed necessary by Council Project Manager

We challenged the nature of this significant variance and Council advised that it was due to the following:

- Groundwater sourcing had never before been undertaken by the GWCWA.
- The preliminary investigation was exploratory and not well defined.
- Membrane Ultra filtration was required at the Woy Woy Borefield.
- Unforeseen and extensive environmental monitoring was required to prove the available yields.

Assessment of prudence

Given the high (and escalating) capital cost and reducing yield, the prudence of the groundwater schemes is questionable.

The groundwater schemes formed part of a number of emergency drought alleviation projects initiated and delivered concurrently by the GWCWA. As such, should one of the alternative drought alleviation projects deliver appropriate volumes of potable water, there is a likely risk that the bore fields will not be required and will potentially be 'mothballed'.

Due to the expediency required to locate alternative supplies, the groundwater schemes were 'fast tracked' at the expense of efficiency. During our review we saw no substantive evidence that the cost effectiveness or prudence of the schemes were challenged.

The method of procurement was also inefficient, as Council did not take advantage of the benefits that clustering of similar type schemes and would have had on both procurement and capital costs.

However, we acknowledge the desperate water resource situation facing the Central Coast, and recognise the need to explore all ground water resource options available and to implement solutions as quickly as possible regardless of the relative cost effectiveness of delivery. For this reason we believe the need for the investment to be prudent, although not cost effective.

Water Main Replacement – Peats Ferry Bridge

Summary of Project

As part of the Hawkesbury Villages PSP – Stage 1 solution, Council is required to lay a sewer main across the Hawkesbury River via the Peats Ferry Bridge. The bridge is a strategic bridge with a heritage listing.

As access to the bridge is both restricted and difficult, Council has opted to replace an existing DN150 water main that also crosses the bridge at the same time. This opportunistic project whereby Council has opted to replace some 600 metres of deteriorating DN150 cast iron main with a DN200 ductile iron main. To ensure maximum corrosion resistance, the new main will be coated with an epoxy lining.

Cost Summary

Initial costs for the sewer and water main crossing were built up on a systematic basis, using rates from the existing Council schedule of rates, contract and

estimates of Road Traffic Authority (RTA) fees. The total cost (circa $2M) was then split on a 50/50 basis between the sewer and water main. As such Council has assumed a capital cost of $1M to replace the water main (reported in 2008/09 in the AIR/SIR).

A tender price of $1.3M, which is exclusive of fees and preliminaries, was ultimately agreed to deliver both the sewer and water main crossing. Council has assumed $0.7M of the tendered price reflects the water main element. The agreed tender suggests that Council has allowed a further $0.3M for indirect pre-construction costs, project management and a 15% allowance for contingencies, which seems quite high considering the high level of project definition.

Assessment of Prudence

Given the difficulties in obtaining access to this RTA owned asset, it would appear prudent to opportunistically replace the water main across the Peats Ferry Bridge at the same time as the planned and necessary sewer main link, and thus share the indirect costs. We found, however, that the bridge itself will require maintenance in the future. Such maintenance will require the temporary removal of all services, which will result in additional cost to Council, thereby impacting on the cost effectiveness of this scheme.

We found that the Council had liaised with the RTA on this matter, however, teh RTA was unable to provide Council with its timeframe for bridge maintenance and unwilling to work in with the Council's construction timeframe.

Capital Expenditure on Rainwater Tanks

We understand that over the course of the current Determination period, Council has undertaken a number of projects involving the purchase and installation of rainwater tanks for Council owned sporting facilities and properties. Expenditure on these schemes was approximately $550K over the period, and was fully funded by the regulated business. We are of the opinion that this expenditure should have been funded by Gosford City Council, and not by the regulated water business. We recommend that this expenditure be excluded from the Determination on the basis that we do not consider it to be appropriate.

Conclusions and Recommendations

Within the constraints of an operating framework, driven by the ongoing and worsening drought conditions within the Central Coast, we consider the water program delivered within the 2006 Determination to be broadly prudent.

Under normal operating conditions, we do not believe that multiple water resource strategies would have been pursued concurrently, and as such the GWCWA would not have progressed the groundwater option. However, the ongoing and worsening drought conditions necessitated the need to fast track a number of Drought Contingency Projects, in order to secure additional water resources.

As a result of this, projects have been delivered at the expense of efficiency. Costs have escalated significantly from those initially proposed, and in the case of the Groundwater Extraction Projects, available yield has reduced. Projects have been separately procured and delivered on a piecemeal basis, which reduces the scope to realise procurement efficiencies which are available for schemes of this nature.

The concurrent development of alternative water resource options has also increased the risk of redundant assets (i.e. groundwater sources), particularly when cheaper alternative water resource options (i.e. Hunter Connection) are available.

Based on the circumstances discussed above, we do not believe there were any realistic opportunities for the GWCWA to procure these assets more efficiently. However, as a result of this, and the coincident development of an appropriate asset management framework, Council should now be in a better position to appropriately plan, justify, define and deliver future programs of work. This will provide future opportunities for Council to procure larger/clustered programs of work that will realise economies of scale and reduce procurement/management costs. We consider that introduction of the above mentioned practices could yield a 5-10% reduction in the overall cost of future capital programs.

The Peats Ferry Bridge main replacement project demonstrates the benefit of joint schemes with other authorities that ensure an equitable sharing of cost.

3.4.2 Proposed Expenditure

As highlighted in **Table 16**, Council is proposing a water related capital program of $94M with the expenditure profile shown in **Table 21**.

Table 21 Proposed Water Service Capital Expenditure ($000, 2008/09 real)

2009 Determination	2009/10	2010/11	2011/12	2012/13	Total
Water (T9.1 AIR)	57,992	21,973	6,155	16,372	102,492
Less recycled water schemes reported under water service	343	562	949	6,269	8,123
Water Service Capex	57,649	21,411	5,206	10,103	94,369

Of the six separate water projects chosen for review (refer **Table 18**), the following three projects are forecast to be delivered during the 2009 Determination period:

- JWS – Mardi to Mangrove Transfer System;
- Gosford CBD Retic. Upgrade – Water; and
- Ongoing Water Main Renewal Program.

For each of these projects, we have provided a brief summary of our findings, including our assessment of prudence. Detailed project descriptions are also included in **Appendix B**.

JWS – Mardi to Mangrove Transfer System

Summary of Project

The GWCWA proposes to construct a nominal 20km of DN1000 transfer main to provide an additional link between Mangrove Creek Dam and Mardi Dam. The project also includes the construction of two large capacity pumping stations, a 2.6km rising main, a low flow fishway and modifications to the inlet/outlets. The modifications to the inlet/outlets will enable additional water to be extracted from Wyong River and Ourimbah Creek during medium to high flows, and allow environmental flows on the Wyong, Mooney and Mangrove Rivers. The project is to be managed by Wyong Shire Council.

Cost Summary

We found that the current estimate of $110M (circa $55M for each Council) is based on a high level costing exercise, undertaken by Quantity Surveyors, using a number of broad scope assumptions. We believe an estimate of this nature to be accurate to ±30% and may be subject to further variance.

We were advised that the project has received grant funding approval of $80.3M from the Federal Government, and a steering committee has been established to

manage the expenditure of this grant. We found that the grant is time limited and will need to be spent by 2010. This represents a significant risk to the GWCWA.

Assuming full realisation of the $80.3M grant, the GWCWA will need to finance the remaining $30M. Wyong and Gosford Councils have both allowed the full $110M ($55M each) within their respective SIRs. We confirm that the Federal Government grant has also been separately allowed for within the 'Buss P&L' tab of Council's AIR/SIR.

Assessment of Prudence

In terms of maximising available storage capacity and future proofing the Central Coast's water supply, the Mardi to Mangrove Transfer system represents a sound investment decision.

In reviewing the scheme, we saw evidence of that customer support for the project has been sought, and an internal governance structure has been built into the process to ensure the efficient delivery of the scheme.

Cost estimates are still at an early stage of development and may be subject to further variance and possible escalation, although the $80.3M federal grant significantly reduces the financial burden on the GWCWA. Council has taken steps, through a joint steering committee, to actively manage the expenditure of the grant funding and this should be continued to ensure all funding deadlines are met.

Taking into account the above uncertainties, we believe the Mardi to Mangrove Transfer system prudent and that it represents good value for money.

Gosford CBD Reticulation Upgrade – Water

Summary of Project

The Gosford CBD water reticulation upgrade was included in the 2006 Determination. However, the NSW Minister of Planning subsequently made changes to the Local Environment Plan (LEP) such that the height and density of development was increased significantly from a population growth target of 11,000 to 18,700, taking the total population in the CBD to 29,700 by 2032.

This policy change required extensive remodelling of the impact of growth on the water infrastructure in Gosford CBD. In addition, Council's Development Servicing Plan (DSP) was also revised.

Based on the information provided by Council, we believe that the options considered and modelling undertaken have been to a sufficient level of detail and analysis to justify the need for expenditure on the water network upgrades required to meet the new growth target for 2032.

Cost Summary

Council is currently in the process of costing developer contributions in accordance with the most recent IPART methodology for determining such charges. The approximate cost for CBD Upgrade project for water and wastewater will total $6M from developer chargers attributable to growth, and $3M for compliance/mandatory standards.

Council's AIR/SIR shows the proposed spend profile for the water CBD growth projects to be as shown in **Table 22**.

Table 22 Gosford CBD Reticulation Upgrade Capital Expenditure ($000 2008/09 real)

Actual and Budgeted Capex			Forecast Capex				Actual & Forecast
2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	
2	1	187	167	159	143	162	821

Expenditure on this scheme has not been significant during the first two years of the current Determination period. The expenditure increases from 2008/09 onwards and is forecast to rise significantly for the period to 2012/13. The total expenditure from 2006/07 to the end of 2012/13 is forecast to be $821K for water and $1.4M for wastewater, which indicates that it will be a number of years before both projects (water and wastewater) will be completed at total cost of $9M.

Assessment of Prudence

Given the relatively high level of confidence in this scheme in the past and the subsequent planning decision from the NSW Planning Minister, we believe that this scheme is prudent. Although the capital cost has increased since the 2006 Determination, the reasons for this are understood and the resulting scheme changes and capital costs are based on revised modelling of the water and wastewater networks.

Although the developer charges will effectively fund two thirds of these two projects, the remaining one third of funding has been requested for maintaining mandatory standards and levels of service.

We believe that while the cost estimates used to derive the scheme are detailed and relatively accurate, efficiencies might be achieved during procurement and delivery of the scheme. Council could achieve efficiencies by delivering the CBD growth projects for water and wastewater through a panel arrangement. Tenders could be sought from the panel for works over a certain cost threshold, e.g. $250K. Members of the Panel could be reviewed once every Determination period. We expect this to be captured in the overall efficiency allowance that we have set for Council's water business capital expenditure program (as discussed in **Section 3.8**).

Ongoing Water Main Renewal Program

Summary of Project

Council's annual Water Mains Renewal (WMR) program is designed to replace water mains with a high risk/failure rate, indicating that the infrastructure assets are nearing the end of their useful life. Historically, Council has only had a budget of ~$1M per annum to renew water mains, based on a global assessment of renewals by pipe age. However, in its 2008 pricing submission, Council is seeking to effectively double its annual WMR program budget to an average of $2.3M per annum from 2009/10 to 2012/13.

Council has indicated that this increase in expenditure is necessary due to continued high levels of water main failures which are attributable, in part, to drought impacts on soil stability. The WMR program appears to compliment the Water Quality 2010 initiative which includes, amongst other things, modifications to the water treatment process and reservoirs to improve water quality and lower the number of customer complaints.

Cost Summary

The capital expenditure required for the WMR program of works was previously based on an assessment of water pipe asset age and an assumed percentage renewal over time. Council's actual and proposed expenditure profile from 2007 to 2013 is shown in **Table 23**.

Table 23 Water Main Renewal Program ($000 2008/09 real)

Actual and Budgeted Capex			Forecast Capex				Total	Total Forecast
2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2006/07 – 2008/09	2009/10 – 2012/13
1,836	1,043	1,062	1,269	2,684	2,684	2,589	3,941	9,225

The average forecast expenditure on water mains renewals over the coming Determination period is $2.3M per annum. This is a 130% increase over the previous budget allowance of $1M per annum.

In terms of the ongoing water main renewals program (WMR), we do not believe the current perceived level of system performance justifies the proposed 130% (approximately) step increase in mains renewals. In addition, we believe that there is scope to further reduce the unit cost of mains renewal activity by reconsidering the approach to delivery of the program. A longer term strategic view of requirements will enable more efficient procurement practices to be adopted, which could further reduce unit costs by 5-10% year on year.

Assessment of Prudence

Whilst a larger WMR program, over and above the current budget allowance, may be necessary in the future, Council has not yet undertaken the necessary asset management studies to determine what level of expenditure will be required. Council has completed some analysis of overall network water mains breaks data since the early nineties, and undertaken comparisons with Sydney Water and Wyong Shire Council. However, the analysis is not conclusive enough to suggest that the WMR program needs to be more than doubled within the next Determination period.

We believe that the WMR program is prudent, but we don't believe that the increase in the level of expenditure proposed is justified. We note, however, that the aging asbestos cement pipes have been causing particular problems for Council in recent times. Given that more work (condition assessments, etc.) will be done to understand the risk of asset failure, a modest increase in expenditure to approximately $1.6M per annum, i.e. just above the levels expended during the drought, would be more prudent.

Historically, the majority of the mains renewal activity has been delivered in-house. Although, performance has been benchmarked against the private sector on an individual 'job' basis, we believe that Council should consider outsourcing all of its

Mains Renewals activity, particularly as the program reaches a more critical mass of sustainable work. This will enable further efficiencies to be achieved, and would free up the in-house resources to focus on undertaking more maintenance/renewal works on other types of asset such as sewers and drainage networks.

Based on our review, we recommend capital expenditure for the water main renewal program as shown in **Table 24**.

Table 24 Proposed and Recommended Water Main Renewal Program ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13	Total 2009-2013
Proposed WMR capex	1,269	2,684	2,684	2,589	9,225
Recommended re-profile*	1,450	1,533	1,635	1,587	6,204
Less 5% procurement efficiency	(72)	(77)	(82)	(79)	(310)
Halcrow WMR recommended capex	1,377	1,456	1,553	1,508	5,894

Note (*) The proposed WMR expenditure profile is based on the forecast trend, scaled to reflect perceived deliverability and to reflect the need for investigation and data analysis to provide further justification for an increase in WMR capital expenditure above the level recommended.

Conclusions and Recommendations

Based on the projects reviewed, we consider the overall proposed water related capital program to be both prudent and necessary. The Mardi to Mangrove Transfer project represents a good example of the use of internal governance to oversee and control the delivery of a large capital project, and we recommend the adoption of a similar approach for the delivery of other large schemes.

We were advised that the Mardi to Mangrove Transfer project will be partly financed by an $80.3M Federal Government grant, reducing Council's financial liability to circa $15M for that project, which represents good value for money.

In terms of the ongoing water main renewals program (WMR), we do not believe the current perceived level of system performance justifies the proposed 130% step increase in mains renewals. In addition, we believe that there is scope to further reduce the unit cost of mains renewal activity by reconsidering the

approach to delivery of the program. A longer term strategic view of requirements will enable more efficient procurement practices to be adopted, which could further reduce unit costs by 5-10% year on year.

Based on the above findings, we recommend the capital expenditure allowances shown in Table 25 for the water projects we reviewed.

Table 25 Proposed and Recommended Water Scheme Capital Expenditure ($000 2008/09 real)

Project		2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Total
Mardi – Mangrove Transfer Main	Proposed	2,020	10,015	34,491	7,296	-	-	53,821
	Recommended	2,020	10,015	34,491	7,296	-	-	53,821
	Difference	-	-	-	-	-	-	-
General WMR	Proposed	1,043	1,062	1,269	2,684	2,684	2,589	11,330
	Recommend	1,043	1,350	1,450	1,533	1,635	1,587	8,597
	Difference	-	288	181	(1,151)	(1,049)	(1,002)	(2,733)
Gosford CBD retic upgrade	Proposed	1	187	167	159	143	162	819
	Recommended	1	187	167	159	143	162	819
	Difference	-	-	-	-	-	-	-

The proposed and recommended capital expenditure for the water service during the coming Determination period is shown in **Table 26**.

Table 26 Proposed and Recommended Water Capital Expenditure ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13	Total
Council Submission (Table 9.1 SIR)	57,992	21,973	6,155	16,372	102,492
Less adjustments for -					
General WMR	181	(1,151)	(1,049)	(1,002)	(2,733)
Recycled Water Schemes reported under water service	(343)	(562)	(949)	(6,269)	(8,123)
Halcrow Proposed Total	**57,830**	**20,261**	**4,157**	**9,101**	**91,348**
Less grants	(21,359)	(18,589)	(164)	(164)	(40,276)
Less developer charges	(1,069)	(1,161)	(1,198)	(1,318)	(4,746)
Halcrow Proposed Total (net of grants and contributions)	35,904	511	2,795	7,619	46,828

3.5 Recycled Water

3.5.1 Historical Expenditure

The previous Determination did not include any specific allowance for recycled water schemes.

3.5.2 Proposed Expenditure

Council is proposing to deliver a number of recycled water projects. We have reviewed the recycled water schemes in the context of periodic charges and have therefore not included any details on actual and proposed expenditure.

We identified three recycled water schemes forecast to be delivered during the 2009 and 2014 Determination period (refer **Table 18**). The schemes selected for review are:

- JWS – Gosford Water Factory;
- JWS – Woy Woy Water Recycling Project; and
- JWS – Gosford CBD Recycled Water Scheme.

For each of the projects, we have provided a brief summary of our findings, including our assessment of prudence. Detailed project descriptions are also included in **Appendix B**.

JWS – Gosford Water Factory

Summary of Project

Council proposes to construct a small scale water recycling works in the Gosford CBD area. This 'Water Factory' is to act as an educational/communications tool, to be used to promote and demonstrate alternative water supply options.

It is Council's intention to construct a 'state of the art' facility, with architectural merit that would promote and encourage tourism to the Gosford CBD.

Council engaged an Architect to develop an architectural concept plan for the 'Water Factory'; Council sought to develop a structure that is both functional and prominent. A 'bubble' shaped translucent building has been proposed, to be located over Brisbane Water.

Cost Summary

We found that the initial cost estimate for the Water Factory was based on a review undertaken by an independent Quantity Surveyor, and is inclusive of a 25% contingency allowance.

Council has assumed a moderate spend profile to undertake the concept design and pre-construction activities over the course of the 2009 Determination period. The majority of the construction spend is forecast to occur during the 2014 Determination period.

As the 2009 Determination will exclude recycled water, our recommended capital expenditure for Council's proposed capital program excludes these recycled water schemes.

Assessment of Prudence

In the context of the periodic charges, we do not consider this scheme to be either prudent or cost effective.

Whilst the Gosford Water Factory would provide a useful educational facility to the wider community and create a marquee landmark within the Gosford CBD, we do not consider the promotion of tourism within the Central Coast to be an objective of the JWS, or that it should be funded through water rates.

The volume of water produced by the Water Factory and high unit cost of this water does not compare favourably with other alternative water supply options. As such, the high capital cost is not justified.

Should the JWS wish to promote WaterPlan 2050 in a tactile manner, then a more prudent design may be more appropriate, utilising existing water re-use plant.

JWS – Woy Woy Water Recycling Project

Summary of Project

Council propose to construct a water recycling plant, which will use membrane filtration and UV treatment technology, near Woy Woy Sewage Treatment Plant (STP). The purpose of the scheme, which also includes the construction of a recycled water reservoir and 17km of 'third pipe' reticulation, is to relieve pressure on the existing alluvial sand groundwater aquifer, by providing an alternative source of 'external use' water.

There are a large number of private 'spear points' in the Woy Woy area. These draw water from the alluvial aquifer for external use, adversely impacting on the recently completed ground water supply. It is Council's intention to provide these private extractors with an alternative source of 'external use' water and thus preserve the aquifer and increase the potential yield of the Woy Woy Borefield.

An alternative to this is that the Council could use the recycled water to recharge the aquifer.

Cost Summary

Initial costs were built up on a unit cost basis, using current schedules of rates.

Council has assumed a long lead time on this project, with spend forecast up to 2012/13 to undertake the concept design and other preliminary activities.

As the 2009 Determination will exclude recycled water, our recommended capital expenditure for Council's proposed capital program excludes these recycled water schemes.

Assessment of Prudence

As with the other proposed water recycling schemes, whilst we acknowledge the need to promote alternative water resource options, in the context of the periodic charges we do not consider this scheme to be either prudent or cost effective.

The scheme was initially conceived in conjunction with a number of other drought alleviation options (including the JWS Groundwater scheme), many of which we consider to be more viable.

The scope of the scheme, and overall cost effectiveness, is based on assumptions that 80% of the known private extractors will opt to switch to the recycled supply and that the total number of private extractors is double the number currently known. It is our view that Council has overstated these assumptions (which have little basis) and that the level of take up will be quite low, as we do not believe customers would opt for a high cost recycled supply when an existing low cost supply is already available.

If this is the case, the only alternative use of the recycled supply would be to recharge the alluvial sand aquifer from which the Woy Woy Groundwater scheme draws its supply. This would result in the double treatment of water, significantly increasing the unit cost of the groundwater source.

JWS – Gosford CBD Recycled Water Scheme

Summary of Project

As part of the growth related upgrade of water and wastewater infrastructure within Gosford CBD, Council intends to provide a separate recycled water

network within the CBD. It is expected that all future CBD developments will connect to the 'third pipe' network and all nearby playing fields would be irrigated using the recycled water.

Cost Summary

Initial cost estimates have been built up on a first principles basis using known contract rates and material cost. Given the uncertainty of the scope of the proposed work, 20% contingency has been allowed for a number of the elements.

Council's costs are based on the assumption that there will be a 70% uptake by developments of a 'third pipe' recycled water scheme, and that the resultant developer contributions would finance the scheme.

As the 2009 Determination will exclude recycled water, our recommended capital expenditure for Council's proposed capital program excludes these recycled water schemes.

Assessment of Prudence

Given the high capital cost, high unit cost of water, high level of uncertainty over developer uptake within the Gosford CBD and the fact that a number of more cost effective water resource options are concurrently being progressed, in the context of period charges we do not consider the Gosford CBD – Recycled Water scheme to be a prudent or cost effective alternative resource.

Whilst the scheme may improve the 'kudos' of Gosford City and raise its profile as a 'green city', we do not believe this ambition should be funded by the water business.

We do, however, acknowledge that the availability of recycled water is a condition of the Gosford CBD Local Environment Plan (LEP) and recognise that some provision needs to be made. To its credit, Council has assumed a long lead time for this scheme, that ensures progress is dependent on developer uptake. With this in mind we consider it would be prudent to lay a 'third pipe' network in conjunction with the planned network upgrade of the Gosford CBD.

Conclusions and Recommendations

Based on the projects reviewed and summarised above, in the context of period charges we do not believe the recycled water program to be either prudent or justified.

As an alternative water resource option, the high unit cost of recycled water proposed in the schemes reviewed does not compare favourably with other alternatives. Furthermore, in the case of the Woy Woy Recycling Scheme, we do not consider the level of recycled water uptake predicted is either realistic or achievable, which further reduces the overall cost effectiveness of these projects.

One of the primary drivers for the delivery of recycled water projects is to create a potential tourist destination within the Central Coast (through the Gosford Water Factory) and the desire to promote Council's 'green' credentials. Whilst these objectives are admirable, we consider they fall within the remit and financial responsibility of the wider council, rather than the water business.

For these reasons, we do not believe expenditure on the recycled water schemes is justified. The only possible exception to this relates to the Gosford CBD Recycled Water Scheme, where provision of recycled water is a condition of the LEP. As such, we consider it may be prudent and cost effective to lay a 'third pipe' network in conjunction with the planned water network upgrade in the Gosford CBD. This will give Council the option for the use of recycled water in the future, if prudent.

In the case of the Gosford Water Factory, we do not believe this expenditure is justified. However, should JWS wish to promote WaterPlan 2050 in a tactile and interactive manner, then either a more prudent design for a Water Factory could be considered, or an existing water re-use plant could be modified and utilised.

As the 2009 Determination will exclude recycled water, our recommended capital expenditure for Council's proposed capital program excludes these recycled water schemes.

3.6 Wastewater

3.6.1 Historical Expenditure

Within the 2006 Determination, Council agreed to deliver a defined program of works against the agreed delivery profile, shown in **Table 27**. Council is, however, forecasting a 20% overspend.

Table 27 Wastewater Service Capital Expenditure vs Determination ($000, 2008/09 real)

	2006/07	2007/08	2008/09	Total
Determination	10,400	14,300	13,200	37,900
Actual (Table 9.3 AIR/SIR)	4,208	14,719	27,114	46,040

Of the three separate wastewater projects chosen for review (refer **Table 18**), the Hawkesbury Village PSP – Stage 1 project will be delivered during the current Determination period and has incurred significant spend to date. We have provided a brief summary of our findings in relation to this project, including our assessment of prudence. A detailed project description is also included in **Appendix B**.

Hawkesbury Village PSP – Stage 1

Summary of Project

The purpose of this scheme is to provide a sewer connection to 250 properties within the Mooney Mooney, Cheero Point and Peat Island communities.

On the basis that a traditional gravity scheme is an expensive option and a vacuum system uses old technology, Council has opted for a low pressure scheme. This preferred option involves the installation of individual grinder pumps on each of the 250 new connections, a pressurised collection system, and a transfer main for conveyance of effluent across the Hawkesbury River (via a bridge crossing) to the Brooklyn STP, an existing Sydney Water asset.

Due to the shared infrastructure and a joint benefit derived, it was agreed to deliver this as a joint scheme with Sydney Water and the Department of Ageing, Disability and Home Care (DADHC), in terms of both costs and actual delivery. It was agreed that Sydney Water would retain ownership of the joint infrastructure, whilst Council would own the collection system.

Cost Comparison

We found that the initial estimate for the delivery of this scheme was $4.4M (in 2002 prices) which was based on a desktop review of the project scope.

As the solution definition improved, cost estimates have continued to be refined, with the latest best estimate anticipated to be $14.3M (2008/09 dollars). Of that amount, Council will fund a total of $9.6M.

We found that a large proportion (67%) of the Council component of the scheme has been funded through a variety of grants and contributions. In summary, Council has received the following funding:

- State Government contribution of $3,000/property ($0.75M);
- Contribution from County Towns Fund of 50% of capital cost ($4.0M); and
- Customer contributions of $10,000/property ($2.5M).

The remaining balance (circa $2.4M) will be funded by the wider community, through water rates.

At the time of review, we found that $7.9M had been spent to date, which equates to 55% of total spend. When compared to the actual progress, the current level of spend reflects good progress, although it should be noted that the more difficult aspects of the project (including the bridge crossing) have not yet been delivered.

Assessment of Prudence

In the delivery of this scheme, Council has shared both cost and responsibility for assets with both Sydney Water and DADHC. Combining this arrangement with the utilisation of all available grants and contributions has reduced the financial burden on the wider Council customer base.

We also consider the procurement strategy adopted to be both appropriate and cost effective. In developing the preferred option, we found that Council has undertaken a Net Present Value analysis which accounted for whole life costs.

Based on the above, we consider the Hawkesbury PSP – Stage 1 to be both prudent and cost effective. Our only reservation relates to the fact that Council does not appear to have accounted for initial investigation and management costs. These have been absorbed within general Council overhead costs, and not shared with Sydney Water and DADHC as we would expect. We queried the extent of these costs, and found that circa $100K in internal staff costs has been expended on the project. We were advised that these costs are captured on salary

capitalisation sheets on a weekly basis and are capitalised periodically. Whilst, in the case of this project, the internal costs are relatively immaterial (with project management separately contracted), we consider that these costs should be included within the capital program from the outset. Council are effectively understating the true cost of schemes allowed within the Determination, and overstating the level of operating expenditure required. Furthermore, in the case of a shared project such as this, the current process makes it difficult for Council to recover a proportion of these internal project costs from the other project partners.

Conclusions and Recommendations

Based on our understanding of the current wastewater capital program and the project reviewed and summarised above, we consider the program to be prudent and cost effective. We do, however, consider it necessary to capture and allow for internal project related costs within the capital expenditure forecasts.

3.6.2 *Proposed Expenditure*

As highlighted in **Table 16**, Council is proposing a wastewater related capital program of $85M, with the expenditure profile shown in **Table 28**.

Table 28 Proposed Wastewater Service Capital Expenditure ($000, 2008/09 real)

	2009/10	2010/11	2011/12	2012/13	Total
Proposed expenditure (Table 9.3 AIR/SIR)	28,091	21,059	22,170	13,791	85,111

Of the three separate water projects chosen for review (refer **Table 18**), the following two projects are forecast to be delivered during the 2009 Determination period:

- Terrigal to Kincumber Augmentation; and
- Gosford CBD Reticulation Upgrade – Wastewater.

For each of the projects, we have provided a brief summary of our findings, including our assessment of prudence. Detailed project descriptions are also included in **Appendix B**.

Terrigal to Kincumber Augmentation

Summary of Project

Council proposes to augment the Terrigal to Kincumber Sewage Treatment Plant (STP) coastal carrier and construct a new sewage carrier system for the catchment of Terrigal, North Avoca, Avoca Beach and Kincumber.

The proposed project will direct flow away from Avoca Lake, maximise the capacity of Terrigal SPS and allow for potential additional development within the Picketts Valley area.

In summary, the preferred option involves:

- Upgrade North Avoca Sewage Pumping Station (SPS), to replace ageing equipment and allow for further growth.
- Direct flow from Lake Avoca and pump from North Avoca SPS to Terrigal SPS.
- Micro tunnel from Terrigal SPS to Kincumber SPS (circa 2km) – known as Golden Grove Tunnel.
- Construct a new rising main from Avoca A1 PS to link in with tunnel.
- Construct a duplicate main to Kincumber SPS.

Cost Summary

Since the inception of this project, the overall high level cost estimate for the Terrigal to Kincumber Augmentation has escalated significantly.

We found that the initial feasibility estimate for delivery of the (as yet to be defined) scheme prepared in 2005 was $17.2M, which was nominally adjusted to $18M for the 2006 IPART Determination.

Following completion of the strategic option assessment process, the estimate was further reviewed and inflated to $32M. As part of the concept design process, a peer review of costing information was undertaken which has resulted in further escalation to the latest best estimate of $40.5M.

Given the complexity of this scheme, the high level of uncertainty and significant variance to date, we are concerned that costs will continue to escalate as the scheme definition improves.

Assessment of Prudence

Whilst there are multiple benefits to the delivery of this large scheme, including upgrades to a number of catchment areas, we do not believe that the current level of performance of the existing coastal carrier justifies the large capital intensive solution proposed.

The justification and scope of the scheme is founded on the need to divert flow from the existing twin DN600 pipelines crossing Lake Avoca. However, when challenged on the historic performance of this pipeline, Council confirmed that there had been no serviceability failures on this section of main. Given the relatively young age of the pipeline (reported to be less than 30 years old), we would expect the pipe to continue to perform as designed for a further 30 years at least. Evidence from both Australia and internationally suggests that large diameter sewers have an asset design life in excess of 100 years.

We are aware that isolation valves on the twin DN600 pipelines are in a poor state of repair, however, replacement of these valves would enable the isolation of one of the pipes in the future and enable Council to undertake maintenance, should it be necessary.

We consider that the 'pinch point' within the coastal carrier is the North Avoca SPS. Upgrading this facility to a capacity that would cope with wet weather flow from Terrigal SPS would resolve the growth and maintenance issues that currently exist.

We acknowledge that Council has developed a robust evaluation methodology and undertaken a detailed analysis using multi criteria assessment, which represents good engineering practice. However, we believe the assessment criteria are skewed towards the potential environmental risk, when asset serviceability should be the primary driver.

For these reasons we do not believe the proposed solution to be prudent or justified. We believe a scaled down solution, involving the upgrade/renewal of the North Avoca SPS and associated isolation valves, may be more appropriate for this Determination period.

The Council argues that in addition to the issues surrounding the Avoca/Terrigal catchment at Lake Avoca, augmentation works in other catchments are also proposed that are independent of the main component of the scheme.

Without undertaking a more detailed engineering assessment of the scheme (which was not possible given the time scales available) involving the unbundling of the

individual scope and costs for each element of the scheme, we are unable to provide a firm estimate for the above mentioned, reduced scope scheme. Council suggests that a budget of $23M would enable it to complete a least cost option for Terrigal/Avoca and undertake identified work in the other catchments. While we have not reviewed this revised scope and as such are unable to confirm the prudence and cost effectiveness of this alternative option, we agree with this way forward.

We note that Council have responded to our position on this scheme by acknowledging that there has been a significant change to the scheme from the original base case and that they are proposing to undertake a reassessment of "all of the original options" in the foreseeable near future. We support this approach which we anticipate, with further analysis of the risks and costs involved, will result in a change in scope that provides the greatest benefit at least cost. We suggest that as part of this analysis, a pipe condition assessment should be undertaken on the pipeline across Lake Avoca to more fully understand the likelihood and consequence of pipe failure occurring.

The seized valves should be replaced to give operational flexibility and reduce the risk of spills from the network or pumping station. We believe that this maintenance should technically be achievable given that there are two pipes crossing the lake to facilitate the necessary shutdown of the pipeline.

Gosford CBD Retic Upgrade - Wastewater

Summary of Project

The Gosford CBD wastewater reticulation upgrade was included within the 2006 Determination. However, the NSW Minister of Planning subsequently made changes to the Local Environment Plan (LEP) such that the height and density of development was increased significantly from a growth target of 11,000 to 18,700 people, taking the total population in the CBD up to 29,700 by 2032.

This policy change required extensive remodelling of the impact of growth on wastewater infrastructure in Gosford CBD and revision of Council's previous Development Servicing Plan (DSP).

A number of options to meet population growth up to 30,000 by 2032 were modelled. The two main options were:

- Upgrading the old wet well/dry well pumping station and associated rising main.

- Retaining and relining the existing network (particularly in places where buildings sit over the sewer) and pumping through the existing rising main to service a portion of the flows, as well as building a new pumping station and pumping the other half of the flow through the new rising main routed around the network to avoid constrictions in the existing system.

Cost Summary

Council is currently in the process of costing developer contributions in accordance with the most recent IPART methodology for determining such charges. The approximate cost for CBD Upgrade project for water and wastewater will total $6M from developer chargers attributable to growth, and $3M for compliance/mandatory standards.

Council's AIR/SIR shows the proposed spend profile for the wastewater CBD growth projects to be as shown in **Table 29**.

Table 29 Wastewater CBD Growth Projects Capital Expenditure ($M 2008/09 real)

Actual and Budgeted Capex			Forecast Capex				Total
2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	
6	10	174	131	152	412	473	1,359

Expenditure on this scheme has not been significant during the first two years of the current Determination period. The expenditure increases from 2008/09 onwards and is forecast to rise steadily for sewer augmentation upgrades by 2012/13. The total expenditure from 2006/07 to the end of 2012/13 is forecast to be $821K for water and $1.4M for wastewater, which indicates that it will be a number of years before both projects (water and wastewater) will be completed at a total cost of $9M.

Assessment of Prudence

Given the relatively high level of confidence in this scheme in the past and the subsequent planning decision from the NSW Planning Minister, we believe that this scheme (both water and wastewater) is prudent.

Although the capital cost has increased since the previous Determination, the reasons for this are understood and the resulting scheme changes and capital costs are based on revised modelling of the water and waste water networks.

Although the developer charges will effectively fund two thirds of these two projects, the remaining one third of funding has been requested for maintaining mandatory standards and levels of service.

We believe that while the cost estimates used to derive the scheme are detailed and relatively accurate, efficiencies might be achieved during procurement and delivery of the scheme. Council could achieve efficiencies by delivering the CBD growth projects for water and wastewater through a panel arrangement. Tenders could be sought from the panel for works over a certain cost threshold, e.g. $250K. Members of the Panel could be reviewed once every Determination period.

Conclusions and Recommendations

Council has proposed a significant increase to the wastewater capital program. A significant contributor to this proposed increase is the Terrigal to Kincumber Augmentation, currently forecast at $40.5M. We undertook a detailed review of the need for this scheme and we do not consider the scheme, as currently defined, to be justified or prudent.

The overall scope of the project is founded on the need to reduce the potential risk of pollution to Lake Avoca. The proposed solution involves (amongst other things) the upgrade of the existing North Avoca pumping station and diversion of flow from the existing crossing of Lake Avoca, through the construction of a 2km tunnel. However, as there have been no incidents of serviceability failure on the existing lake crossing and the main is relatively young, we do not believe the abandonment of this section of main to be justified. We believe a reduction in scope to be more prudent, focussing primarily on the upgrade of North Avoca SPS and replacement of associated isolation valves. The other growth related improvements proposed and included within the overall scheme should be separately considered and delivered at an appropriate time. Whilst we are uncertain of the cost of such work, we consider the potential savings to be significant.

Council suggests that a budget of $23M would enable it to complete a least cost option for Terrigal/Avoca and undertake identified work in the other catchments. While we have not reviewed this revised scope and as such are unable to confirm the prudence and cost effectiveness of this alternative option, we agree with this way forward.

In the consideration of our findings, we support Council's proposal to undertake a reassessment of the original scheme options in the near future. We anticipate that, with further analysis of the risks and costs involved, the results will prompt a

change in scope that provides the greatest benefit at least cost. We suggest that as part of this analysis, a pipe condition assessment should be undertaken on the pipeline across Lake Avoca to more fully understand the risk of pipe failure occurring and impacting on the estuarine environment. The seized valves should be replaced to give operational flexibility and reduce the risk of spills from the sewage system and we believe that this maintenance should be both feasible and technically achievable given the existence of dual pipelines crossing the lake.

Based on the above reasoning, we recommend the capital expenditure profiles shown in **Table 30** for the schemes we have reviewed.

Table 30 Wastewater Projects - Recommended Capital Expenditure ($000 2008/09 real)

		2008/09	2009/10	2010/11	2011/12	2012/13	Total
Terrigal to Kincumber Augmentation	Proposed	1,659	7,671	13,269	11,403	3,836	37,838
	Recommended	1,500	6,500	10,000	5,000		23,000
	Difference	(159)	(1,171)	(3,269)	(6,403)	(3,836)	(14,838)
Gosford CBD Upgrade - Sewer	Proposed	174	131	152	412	473	1,359
	Recommended	174	131	152	412	473	1,359
	Difference	-	-	-	-	-	-

The proposed and recommended capital expenditure for the wastewater service during the coming Determination period is shown in **Table 31**.

Table 31 Proposed and Recommended Wastewater Capital Expenditure ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13	Total
Council Submission (Table 9.3 SIR)	28,091	21,059	22,170	13,791	85,111
Less adjustments for -					
Terrigal to Kincumber Augmentation	(1,171)	(3,269)	(6,403)	(3,836)	(14,679)
Halcrow Proposed Total	**26,920**	**17,789**	**15,767**	**9,955**	**70,432**
Less grants	(97)	(377)	(366)	-	(840)
Less developer charges	(761)	(802)	(799)	(911)	(3,273)
Halcrow Proposed Total (net of grants and contributions)	26,062	16,610	14,602	9,045	66,319

3.7 Stormwater

3.7.1 Historical Expenditure

Table 32 shows the variation in Council's actual stormwater capital expenditure to that funded in the 2006 Determination. As much of Council's stormwater program is funded via grants and contributions, a breakdown of these is also provided.

Table 32 Stormwater Service Capital Expenditure vs Determination ($000's 2008/09 real)

	2006/07	2007/08	2008/09	Total
Determination	3,950	3,621	3,511	11,082
Actual / Projected Capex (Table 9.3 AIR/SIR)	6,802	4,683	6,260	17,745
Developer Charges (Table 10.4 AIR/SIR)	474	529	532	1,536
Grants (Table 7.4 AIR/SIR)	2,895	3,006	3,822	9,722
Actual Capex funded by Council	3,434	1,148	1,906	6,487
Variance between Determination and Capex funded by Council	-516	-2,473	-1,605	-4,594
Difference (%)	-13%	-68%	-46%	-127%

Council has indicated that, while IPART's Determination sets the revenue that Council receives, it does not set its expenditure profile for the stormwater service. This is clearly evident in **Table 32**.

As identified in Table 18, we reviewed one stormwater project that was initiated and partially delivered during the current Determination period and has incurred significant spend to date. It is anticipated that the project will be delivered during the 2009 Determination period. We have provided a brief summary of our findings, including our assessment of prudence below. A detailed project description is also included in **Appendix B**.

Terrigal CBD Urban Flood Mitigation

Summary of Project

Following the results of the *Terrigal Trunk Drainage Study, Management Study and Management Plan* in August 1995, Council required significant funding in order to progress the implementation of the stormwater flood mitigation works required, particularly within the CBD of the Terrigal town centre.

The study identified thirteen (13) different areas within the Terrigal CBD catchment that required flood risk management. Up to three management options and their associated 'effect of works' were identified for each of the thirteen (13) areas. Given the significance and scope of the project, Council ensured that any existing drains at risk of collapse were incorporated into the project.

Council typically funds its stormwater schemes through a combination of grant funding and its stormwater charge. Only projects that receive grant funding are likely to proceed, as the stormwater charge does not fully fund the stormwater program. To date, Council has received a number of grants to fund the Terrigal CBD Urban Flood Mitigation scheme, although completion of the project across all thirteen (13) areas is subject to Council securing additional grant funding. Council has advised that this scheme is more likely to be funded over other schemes that have since been proposed as the grant funding approval process prioritises schemes that have previously been funded over schemes seeking re-approval or assistance for the first time.

Cost Summary

To date, Council has completed four (4) of the (13) scheme areas. Expenditure on these four (4) schemes has exceeded the original estimate for the total project (i.e. for all thirteen schemes). The combined cost of the four (4) areas is $4.34M (expenditure from 2003/04 to 2006/07), which compares to an original budget for all thirteen areas of circa $2.418M (1995 price base). Separate grants are being sought for each of the remaining nine (9) of the original thirteen (13) areas and these packages of work will be tendered separately.

As Council relies on grants to fund the majority of its stormwater capital works, the remainder of the project will not be viable unless grants funding is approved. Otherwise, we suggest that delivery will have to be spread over a very long period of time (decades) if storm water charges were to be solely relied upon. This is evidenced by the fact that, despite the need being identified in the 1990's, implementation of a solution was not commenced until the mid-2000's and will not be completed for many years from now.

Assessment of Prudence

Council has taken a proactive approach to seeking grants to fund its stormwater capital program. Since 2005, it has been successful in obtaining grant funding to commence its backlog of outstanding flooding and drainage mitigation works (estimated at $170M).

Terrigal CBD Urban Flood Mitigation complies with the criteria for funding approval through the Flood Management Authority (FMA) governance framework and approval process. Council indicated that this project was one of the first in NSW to obtain funding approval from the FMA to address an urban drainage problem that was not just related to flooding impacts on local creeks/rivers. This is a significant achievement in the context of competition for grants funding from 26 Councils in the Hunter region.

On this basis we feel that the project is prudent as it complies with the flood risk assessment criteria in the Flood Development Manual. We are, however, concerned that the viability of the project hinges on obtaining funding approvals for the remaining sub-project phases.

If funding approval is not forthcoming (due to budget cuts or a change in strategy by the FMA), the levels of service for customers may deteriorate further as current allocations from stormwater charges do not cover the implementation of this scheme. Moreover, the final cost of the project is unknown. This is because tenders are only sought when a grant has been approved. Separate grants are being sought for each of the remaining nine (9) of the original thirteen (13) areas and these packages of work will be tendered for separately. As such we are unable to assess the efficiency of this project until all areas have been completed, but we do consider it to be justified. We note also that implementation of works that have been completed thus far have been within an acceptable margin of the original cost tendered.

3.7.2 Proposed Expenditure

As highlighted in **Table 16**, Council is proposing a stormwater related capital program of $22.5M, with the expenditure profile shown in **Table 33**.

Table 33 Proposed Stormwater Capital Expenditure ($000's 2008/09 real)

	2009/10	2010/11	2011/12	2012/13	Total
Proposed Stormwater Capex (Table 9.3 AIR/SIR)	6,102	5,559	5,066	5,813	22,541
Less adjustments for:					
Developer Charges (Table 10.4 AIR)	726	721	714	270	2,431
Grants (Table 7.4 AIR)	3,498	3,004	2,630	272	9,404
Proposed Stormwater Capex (net of grants & contributions)	1,879	1,834	1,722	5,270	10,706

We have undertaken a detailed review of the Terrigal CBD Urban Flood Mitigation scheme. This accounts for $0.95M (or 4.2%) of the proposed stormwater capital expenditure over the four year period. A brief summary of our findings, including our assessment of prudence, is included in **Section 3.7.1**.

Conclusions and Recommendations

From the information provided on the Terrigal CBD Urban Flood Mitigation scheme CWP 368 and the E7 Program of Drainage & Flooding Capital Works plan, it is our understanding that grant funding has been included within the proposed expenditure profile for stormwater in the order of 56% of the total funding value, with the balance being funded from Stormwater charges.

In assessing the actual grant funding allowed for Stormwater in the pricing submission, the worst case scenario is that there is no grant funding available or Council are unsuccessful in securing any of the available grants during the next Determination period, leaving it with a shortfall of $9.7M of its proposed stormwater expenditure. If this occurs, then Council may have to defer some stormwater capital expenditure.

Figure 11 shows the contribution that grants and developer charges have on the overall funding available for stormwater capital works. If growth charges and grant funding are not realised, then the proposed stormwater capital expenditure will experience a significant shortfall in funding of $11.8M or 53% ($9.7M grants and $2.1M developer charges).

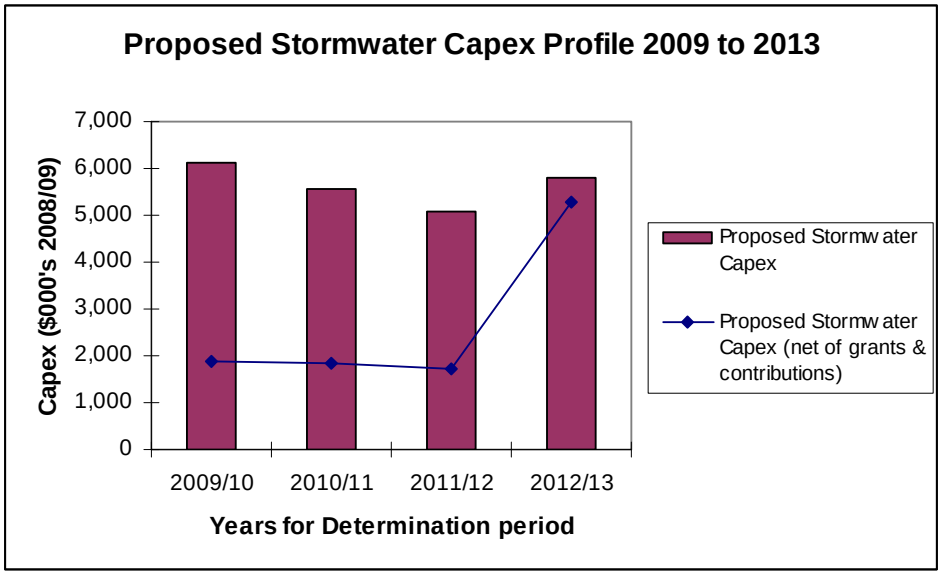

Figure 11 Proposed Stormwater capex profile - 2008/09 to 2012/13

Council is proposing expenditure at levels similar to those for the current Determination period (taking into account grant funding). Given the large backlog of stormwater capital works and the likelihood of a shortfall in Government grant funding (due to the economic down turn), there will be an increasing shift towards funding stormwater drainage capital works via more local funding streams. As such, we are of the opinion that the forecast stormwater capital expenditure at best is likely to be equivalent to the average annual expenditure from the current Determination. This is equal to approximately $5.3M per annum on average, which is approximately 6% lower than that proposed by Council. We believe that, subject to grant funding being approved, Council can sustain a program of this order.

The proposed and recommended capital expenditure profile for Council's stormwater capital program is shown in **Table 34** below. We have adjusted the proposed expenditure so that it is in line with the average annual expenditure for the current Determination. Our recommended expenditure for stormwater assumes that Council will secure the grant funding (as has been the case since 2005). We have profiled the grant funding in line with the proposed expenditure. However, we note that there is a risk grant funding may not be available or may be limited depending on State Government and Federal Government funding levels over the course of the next Determination. Should funding streams be reduced, then Council will have to fund a significant proportion of the stormwater program through alternative means or defer implementation accordingly.

Table 34 Proposed and Recommended Stormwater Service Capital Expenditure ($000's 2008/09 real)

	2009/10	2010/11	2011/12	2012/13	Total
Proposed Stormwater Capex (Table 9.3AIR)	6,102	5,559	5,066	5,813	22,541
Less adjustments for					
Expected expenditure profile	(366)	(334)	(304)	(349)	(1,352)
Halcrow Proposed Total	**5,736**	**5,225**	**4,762**	**5,464**	**21,189**
Less grants (Table 7.4 AIR)	(3,498)	(3,004)	(2,630)	(272)	(9,404)
Less developer charges (Table 10.4 AIR)	(726)	(721)	(714)	(270)	(2,431)
Halcrow Proposed Total (net of grants and contributions)	1,513	1,500	1,418	4,921	9,353

3.8 Delivery and Efficiency

We have not specifically investigated new capital efficiency targets for Council, but have briefly reviewed the targets set in previous reviews in the context of the current operating environment and Council's proposed capital expenditure and used this as the basis of our assessment.

Within the framework of the current Determination and the need to respond to the worsening drought situation, a significantly enhanced capital program has been necessary, delivered at the expense of efficiency. As demonstrated throughout this report, the scope and value of the capital program has, by necessity, increased significantly from that initially agreed. As such, it is almost impossible to assess and capture actual achieved program efficiencies.

Furthermore, based on the apparent difficulty Council has encountered delivering schemes to budget, let alone at reduced cost, efficiency targets set at program level are unlikely to be realised. However, in light of the fact the Council is in the process of developing a sound asset management framework and is looking at the way in which programs of work can be delivered more efficiently, we consider that the potential for efficiencies exist and that Council should actively pursue and capture these. As such, we recommend the efficiency targets shown in **Table 35** going forward.

Table 35 Recommended Efficiency Targets

	2009/10	2010/11	2011/12	2012/13
Capital Program	0.0%	1.0%	2.0%	3.5%

3.9 Recommended Capital Expenditure Projections

Council's proposed and Halcrow's recommended capital expenditure for the price path period 2009/10 to 2012/13 is summarised in **Table 36**. The figures include allowances for efficiency gains.

Table 36 Proposed and Recommended Capital Expenditure ($000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Council's Submission				
Water	57,992	21,973	6,155	16,372
Wastewater	28,091	21,059	22,170	13,791
Stormwater	6,102	5,559	5,066	5,813
Total Proposed Capex				
Halcrow Recommended				
Water	57,830	20,261	4,157	9,101
Wastewater	26,920	17,789	15,767	9,955
Stormwater	5,736	5,225	4,762	5,464
Recommended Capex	**90,485**	**43,275**	**24,686**	**24,521**
Water (excluding WMR program where efficiency already applied)	56,380	18,728	2,523	7,514
Wastewater (excluding Terrigal to Kincumber where program has already been adjusted)	20,420	7,789	10,767	9,955
Stormwater (efficiency to be applied to whole program)	5,736	5,225	4,762	5,464
Efficiency Target (%)	0.00%	1.00%	2.00%	3.50%
Efficiency savings				
Water	0	187	50	263
Wastewater	0	78	215	348
Stormwater	0	52	95	191
Total Recommended Capex				
Water	57,830	20,073	4,107	8,838
Wastewater	26,920	17,711	15,552	9,607
Stormwater	5,736	5,173	4,667	5,273
Total capex (net of efficiency)	**90,485**	**42,958**	**24,325**	**23,718**

Whilst not all proposed capital expenditure has been assessed as being prudent and efficient, it is not possible on the basis of the review undertaken to extrapolate these findings to the remainder of Council's capital program for the Determination period. The lack of prudence and efficiency was primarily identified in two of the ten projects reviewed, which does not provide a basis for an "across the board" application.

4 Output Measures

As part of the 2006 Determination a combination of output (activity) measures were proposed, based on both the delivery of key JWS schemes and a number of other performance based measures relating to asset renewals.

We agree with the continuation of the specific JWS output measures to ensure the timely completion of the various water resource schemes currently being delivered.

However, we do not believe other asset performance based measures are appropriate at this stage, until Council's proposed asset management framework has been fully established and systems are in place to accurately capture performance data.

With this in mind, we consider it may be more appropriate to measure progress against the established timeframes for implementing the core and advanced asset management framework system improvements.

We would expect the majority of this work to be substantially complete during the coming Determination period and that future capital programs will be based on actual asset performance or condition.

In addition to the above, given the significant overspend reported on a number of projects delivered to date, it may be appropriate to measure 2009 Determination estimates against actual project outturn for all major projects above the materiality threshold. We would therefore expect costs submitted in the next submission to be accurate to within ±20%

5 Conclusions

5.1 Operating Expenditure

5.1.1 Historical Expenditure

Council's Submission to IPART indicates that operating expenditure has exceeded the 2006 Determination and that Council forecasts that its operating expenditure requirements will increase (in real terms) over the period of the next Determination.

During the interviews with Council, we identified a number of errors in both the AIR/SIR and in Council's budgets. It appears that some of the revisions to annual budgets made during the budget review process were not fed into the 2009/10 budget or into the projections of operating expenditure reported by Council in its AIR/SIR. The number and extent of changes to Council's initial submission has made our analysis of historical and forecast expenditure difficult and time constrained. These issues may indicate a breakdown or absence of internal quality controls over Council's budgeting and reporting processes. We strongly recommend that Council address this for future reporting to IPART.

We have reviewed Council's historical operating expenditure to assess its efficiency and suitability for use as the foundation for the analysis of proposed operating expenditure.

During our interviews with Council we sought to understand the controls that Council has in place to track and manage budget overruns, particularly in relation to the significant budget over-runs that have taken place over the current Determination period. While it is apparent that variations in expenditure are reported to senior management and Councillors, we saw little evidence that variations in budget had been scrutinised or challenged, or that consideration had been given to alternative approaches. As a consequence, we are uncertain as to how Council gains assurance that budget overruns are justified and prudent. This in turn has hampered our ability to gain assurance that Council's historical levels of expenditure, particularly throughout the current Determination period, have been prudent and efficient. This raises questions as to the prudence and efficiency of Council's operating expenditure projections.

5.1.2 *Proposed Expenditure*

Our review of Council's Corporate Overhead charge found that the method used to allocate the costs appears reasonable and is transparent. However, Council was unable to explain or provide information to support the basis for a number of the drivers used to allocate the corporate overheads, some of which had a significant impact on the overhead ultimately charged to the regulated business. In addition our review identified a number of charges to the regulated water business that we do not consider appropriate. We have recommended that these be excluded from the proposed operating expenditure.

Council has significantly overspent the water service operating expenditure set by IPART in the 2006 Determination. The majority of this over-expenditure was aimed at improving the security of supply during the recent prolonged drought. Much of this expenditure is extraordinary, and the operating expenditure proposed by Council is significantly reduced from 2006/07. We have identified some items of proposed operating expenditure that we do not consider appropriate to include and have recommended that they be excluded.

Council has underspent the determined expenditure set for the wastewater service. Council has explained that actions to address the impacts of the drought required resources to be diverted from wastewater operations to water operations. As the drought has now eased and Council has more certainty over its water supply, the proposed wastewater service operating expenditure indicates a return to more normal operations. Council is not proposing significant increases in expenditure (in real terms) from its 2008/09 budgeted spend. Our analysis indicates that the proposed expenditure is only marginally higher than that approved by IPART in the last Determination, however, Council has included allowances for some items of expenditure that we do not consider appropriate.

Council's expenditure on the stormwater service has exceeded the operating expenditure funded by IPART in the 2006 Determination. This is primarily associated with increases in tipping fees and repairs and maintenance expenditure primarily associated with water sensitive urban design schemes (which have more involved maintenance programs). Council is not proposing any material changes to expenditure associated with stormwater operations, and the proposed operating expenditure is generally in line with 2006/07 levels. On the basis of our review, we consider the assumed increases in stormwater operations expenditure reasonable.

5.2 Capital Expenditure

5.2.1 *Historical Expenditure*

Within the constraints of an operating framework driven by the ongoing and worsening drought conditions within the Central Coast, we found expenditure against the 2006 Determination to be broadly prudent.

Under normal operating conditions, we do not believe that multiple water resource strategies would have been pursued concurrently, and as such the GWCWA would probably not have progressed a number of projects, particularly the groundwater option. However, the ongoing and worsening drought conditions necessitated the need to fast track a number of Drought Contingency Projects in order to secure additional water resources.

As a result of this, projects within the 2006 Determination have been delivered at the expense of efficiency. Costs have escalated significantly from those initially proposed, and in the case of the Groundwater Extraction Projects, available yield has been less than anticipated. Projects have been separately procured and delivered on a piecemeal basis, which reduces the scope to realise procurement efficiencies which are available for schemes of this nature.

The concurrent development of alternative water resource options has also increased the risk of redundant assets (i.e. groundwater sources), particularly when cheaper alternative water resource options (i.e. Hunter Connection) are available.

Based on the circumstances discussed above, we do not believe there were any realistic opportunities for the GWCWA to procure these assets more efficiently. However, as a result of this, and the coincident development of an appropriate asset management framework, Council should be in a better position to appropriately plan, justify, define and deliver future programs of work. This will provide future opportunities for Council to procure larger/clustered programs of work that will realise economies of scale and reduce procurement/management costs. We consider that introduction of the above mentioned practices could yield a 5-10% reduction in the overall cost of future capital programs.

5.2.2 *Proposed Expenditure*

When considering the overall capital program proposed for delivery during the 2009 Determination period, and based on the representative sample of projects reviewed, we have drawn the following conclusions.

Water Program

We consider the overall proposed water related capital program to be both prudent and necessary. The Mardi to Mangrove Transfer project represents a good example of the use of internal governance to oversee and control the delivery of a large capital project, and we recommend the adoption of a similar approach for the delivery of other large schemes.

In terms of the ongoing water main renewals program (WMR), we do not believe the current perceived level of system performance justifies the proposed 130% increase over the previous budget allowance for mains renewals during the current period. In addition to this we believe there is scope to further reduce the unit cost of mains renewal activity by reconsidering the approach to delivery of the WMR. A longer term strategic view of requirements will enable more efficient procurement practices to be adopted, which could further reduce unit costs by 5-10% year on year.

Recycled Water Program

Council has initiated a significant program to produce and supply recycled water. Based on the projects reviewed, and in the context of periodic charges, we do not believe the recycled water program to be either prudent or justified. However, we note that Council has not made a pricing proposal for recycled water.

As an alternative water resource option, the high unit cost of recycled water proposed in the schemes reviewed does not compare favourably with other alternatives. Furthermore, in the case of the Woy Woy Recycling Scheme, we do not consider the level of recycled water uptake predicted to be either realistic or achievable, which further reduces the cost effectiveness of these projects.

One of the primary drivers for the delivery of recycled water projects is to create a potential tourist destination within the Central Coast (through the Gosford Water Factory) and the desire to promote Councils 'green' credentials. Whilst these objectives are admirable, we consider they fall within the remit and financial responsibility of the wider Council, rather than the water business.

For these reasons, we do not believe expenditure on the recycled water schemes to be justified in the context of periodic charges. The only possible exception to this relates to the Gosford CBD Recycled Water Scheme, where provision of recycled water is a condition of the Local Environment Plan. As such, we consider it may be prudent and cost effective to lay a 'third pipe' network in conjunction with the

planned network upgrade of the Gosford CBD. This will give Council the option for the use of recycled water in the future, if prudent.

In the case of the Gosford Water Factory, we do not believe this expenditure to be justified in the context of periodic charges. However, should JWS wish to promote WaterPlan 2050 in a tactile and interactive manner, then either a more prudent design for a Water Factory could be considered, or an existing water re-use plant could be modified and utilised.

Wastewater Program

Council has proposed a significant increase to the wastewater capital program for the 2009 Determination period.

A significant contributor to this proposed increase is the Terrigal to Kincumber Augmentation, with forecast expenditure of $40.5M. We undertook a detailed review of the need for this scheme and as described in **Section 3.6.2**, we do not consider the scheme, as currently defined to be justified or prudent.

The overall scope of the project is founded on the need to reduce the potential risk of pollution of Lake Avoca. The proposed solution involves (amongst other things) the upgrade of the existing North Avoca Sewage Pumping Station and diversion of flow from the existing crossing of Lake Avoca, through the construction of a 2km tunnel. However, as there have been no incidents of serviceability failure on the existing lake crossing and the main is relatively young, we do not believe the abandonment of this section of main to be justified. We believe a reduction in scope to be more prudent, focussing primarily on the upgrade of North Avoca Sewage Pumping Station and replacement of associated isolation valves. The other growth related improvements proposed and included within the overall scheme should be separately considered and delivered at an appropriate time. Whilst we are uncertain of the cost of such work, we consider the potential savings to be significant.

Council suggests that a budget of $23M would enable it to complete a least cost option for Terrigal/Avoca and undertake identified work in the other catchments. While we have not reviewed this revised scope and as such are unable to confirm the prudence and cost effectiveness of this alternative option, we agree with this strategy for moving forward.

We support Council's proposal to undertake a reassessment of the original scheme options in the near future. We anticipate that, with further analysis of the risks and costs involved, the results will prompt a change in scope that provides the greatest

benefit at least cost. We suggest that as part of this analysis, a pipe condition assessment should be undertaken on the pipeline across Lake Avoca to more fully understand the risk of pipe failure occurring and impacting on the estuarine environment. The seized valves should be replaced to give operational flexibility and reduce the risk of spills from the sewage system and we believe that this maintenance should be both feasible and technically achievable given the existence of dual pipelines crossing the lake.

Stormwater

Council is proposing stormwater expenditure of $24M at levels similar to those for the current Determination period (taking into account grant funding). Given the large backlog of stormwater capital works and the likelihood of a shortfall in Government grant funding (due to the economic down turn), we consider that there will be an increasing shift towards funding stormwater drainage capital works via more local funding streams.

On this basis we recommend that stormwater capital expenditure should be equivalent to the average annual expenditure from the current price path period. This is equal to approximately $5.3M per annum on average, which is approximately 6% lower than that proposed by Council. We believe that, subject to grant funding being approved, Council can sustain a program of this order. We note, however, that there is a risk grant funding may not be available or may be limited depending on Government funding levels over the course of the next Pricing Period. Should funding streams be reduced, then Council will have to fund a significant proportion of the stormwater program through alternative means or defer implementation accordingly.

6 Recommendations

6.1 Overview

This section provides a summary of our recommended total capital and operating expenditure for water, wastewater and stormwater. It also includes our recommendation for operating expenditure for corporate activities related to the water, wastewater and stormwater services for Gosford City Council.

6.2 Operating Expenditure

We have reviewed Gosford Council's 2007/08 AIR/SIR submission and its historical and proposed operating expenditure and have assessed whether the expenditure is both prudent and efficient. We have recommended some adjustment to the proposed expenditure where we believe that it is not efficient, or where we do not consider the proposed expenditure to be reasonable.

Our recommended operating expenditure for the coming Determination period is shown in **Table 37**.

Table 37 Recommended Operating Expenditure ($ 000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Council Submission (Table 3.5 AIR)				
Corporate Overheads	8,882	8,919	8,959	8,959
Water	14,374	14,727	14,284	14,200
Wastewater	14,908	14,695	14,631	14,870
Stormwater	4,188	4,189	4,039	4,038
Total Proposed Opex (efficiency included)	**42,352**	**42,530**	**41,913**	**42,067**
Efficiency already applied to water	98	198	248	-
Efficiency already applied to wastewater	97	195	244	-
Total Proposed Opex (pre-efficiency)	***42,548***	***42,923***	***42,404***	***42,067***
Halcrow Recommended				
Corporate Overheads	8,388	8,422	8,460	8,460
Water	13,104	13,513	13,113	13,179
Wastewater	14,722	14,515	14,456	14,700
Stormwater	4,188	4,189	4,039	4,038
Recommended Opex	40,403	40,639	40,068	40,377
Halcrow Recommended adjusted to add back Council's efficiency allowance				
Corporate Overheads	8,388	8,422	8,460	8,460
Water	13,202	13,711	13,361	13,179
Wastewater	14,820	14,710	14,700	14,700
Stormwater	4,188	4,189	4,039	4,038
Recommended Opex	**40,598**	**41,032**	**40,559**	**40,377**
Efficiency Allowance (%)	0.75%	1.00%	1.25%	1.25%
Efficiency Allowance	304	410	507	505
Halcrow Recommended Opex (efficiency included)				
Corporate Overheads	8,325	8,338	8,354	8,354
Water	13,103	13,574	13,194	13,014
Wastewater	14,709	14,563	14,516	14,516
Stormwater	4,157	4,147	3,988	3,988
Total Recommended Opex (efficiency included)	***40,293***	***40,622***	***40,052***	***39,872***

6.3 Capital Expenditure

We have reviewed Gosford Council's proposed capital program for the 2009 Determination period and its historical and capital expenditure and have assessed whether the expenditure is both prudent and efficient. We have recommended some adjustments to the proposed expenditure for individual schemes that we do not consider to be prudent or justified.

Our recommended capital expenditure for the coming Determination period is shown in **Table 38** below.

Table 38 Recommended Capital Expenditure ($ 000 2008/09 real)

	2009/10	2010/11	2011/12	2012/13
Council's Submission				
Water	57,992	21,973	6,155	16,372
Wastewater	28,091	21,059	22,170	13,791
Stormwater	6,102	5,559	5,066	5,813
Total Proposed Capex				
Halcrow Recommended				
Water	57,830	20,261	4,157	9,101
Wastewater	26,920	17,789	15,767	9,955
Stormwater	5,736	5,225	4,762	5,464
Recommended Capex	**90,485**	**43,275**	**24,686**	**24,521**
Water (excluding WMR program where efficiency already applied)	56,380	18,728	2,523	7,514
Wastewater (excluding Terrigal to Kincumber where program has already been adjusted)	20,420	7,789	10,767	9,955
Stormwater (efficiency to be applied to whole program)	5,736	5,225	4,762	5,464
Efficiency Target (%)	0.00%	1.00%	2.00%	3.50%
Efficiency savings				
Water	0	187	50	263
Wastewater	0	78	215	348
Stormwater	0	52	95	191
Total Recommended Capex				
Water	57,830	20,073	4,107	8,838
Wastewater	26,920	17,711	15,552	9,607
Stormwater	5,736	5,173	4,667	5,273
Total capex (net of efficiency)	**90,485**	**42,958**	**24,325**	**23,718**

6.4 Output Measures

As part of the 2006 Determination a combination of output (activity) measures were proposed, based on both the delivery of key JWS schemes and a number of other performance based measures relating to asset renewals.

We agree with the continuation of the specific JWS output measures to ensure the timely completion of the various water resource schemes currently being delivered. However, we do not believe other asset performance based measures are appropriate at this stage, until Council's proposed asset management framework has been fully established and systems are in place to accurately capture performance data.

With this in mind, we consider it may be more appropriate to measure progress against the established timeframes for implementing the core and advanced asset management framework system improvements. We would expect the majority of this work to be substantially complete for the next IPART submission and that future capital programs will be based on actual asset performance or condition.

In addition to the above, given the significant overspend reported on a number of projects delivered to date, it may be appropriate to measure 2009 Determination estimates against actual project outturn for all major projects above the materiality threshold. We would therefore expect the accuracy costs submitted in the next submission to be accurate to within ±20%.

Annexure A Corporate Overhead Charge Adjustment

				Direct Allocation			Indirect Allocation			Total Allocation		
ACCT NO.	ACCOUNT DESCRIPTION	2009	GENERAL	WATER	SEWER	DRAINAGE	WATER	SEWER	DRAINAGE	WATER	SEWER	DRAINAGE
Corporate Costs to be excluded												
A1001.078	RESERVE FUNDS UTILISED(COUNCIL ELECTION)	900,000	750,000	75,000	75,000	0				75,000	75,000	0
A1001.080	Trfr TO ELECTIONS RESERVE	500,000	416,667	41,667	41,667	0				41,667	41,667	0
A1001.082	CORP.SERV-COUNCIL MEETINGS	34,000	28,333	2,833	2,833	0				2,833	2,833	0
A1001.084	CORP.SERV-ELECTED MEMBERS	385,311	321,093	32,109	32,109	0				32,109	32,109	0
A1001.086	CORP.SERV-SECRETARIAT	172,774	143,978	14,398	14,398	0				14,398	14,398	0
A1001.094	CORP.SERV-ADMIN. MISCELLANEOUS EXPENSES	8,000	6,667	667	667	0				667	667	0
A1001.722	ON-COST WAGES BUDGET-CORP SERV ADMIN	14,148	11,790	1,179	1,179	0				1,179	1,179	0
A1001.879	CORP.SERV-TEA FUND	72,168	60,140	6,014	6,014	0				6,014	6,014	0
C5001.886	MAYORAL - COMMUNITY GROUP DONATIONS	22,500	18,750	1,875	1,875	0				1,875	1,875	0
Other Costs to be excluded												
A8001.881	BURSARY PAYMENTS	3,500	2,917	292	292	0	103	86	30	394	378	30
C2008.041	AUSTRALIA DAY INCOME	-12,000	-4,000	-4,000	-4,000	0	-141	-119	-41	-4,141	-4,119	-41
C2008.300	EVENTS & FESTIVALS-CULTURE PROJECTS	500	167	167	167	0	6	5	2	173	172	2
C2008.302	BUSH FIRE EVENTS	500	167	167	167	0	6	5	2	173	172	2
C2008.309	SPONSOR-COMMUNITY/CULTURAL	1,000	333	333	333	0	12	10	3	345	343	3
C2008.671	VIP VISITS	5,000	4,450	400	100	50	157	132	46	557	232	96

				Direct Allocation			Indirect Allocation			Total Allocation		
ACCT NO.	ACCOUNT DESCRIPTION	2009	GENERAL	WATER	SEWER	DRAINAGE	WATER	SEWER	DRAINAGE	WATER	SEWER	DRAINAGE
C2008.813	GOSFORD FESTIVAL	100,000	33,333	33,333	33,333	0	1,173	988	344	34,506	34,321	344
C2008.814	COMEDY EVENT SPONSORSHIP	5,000	1,667	1,667	1,667	0	59	49	17	1,725	1,716	17
C2008.816	RECONCILIATION WEEK	1,000	333	333	333	0	12	10	3	345	343	3
C2008.817	NAIDOC WEEK	1,000	333	333	333	0	12	10	3	345	343	3
C2008.818	WALK TO WORK DAY	1,000	333	333	333	0	12	10	3	345	343	3
C2008.819	RECYCLING WEEK	3,000	1,000	1,000	1,000	0	35	30	10	1,035	1,030	10
C2008.823	HARMONY DAY	1,000	333	333	333	0	12	10	3	345	343	3
C2008.824	HERITAGE WEEK	1,000	333	333	333	0	12	10	3	345	343	3
C2008.842	BOOK WEEK	2,000	667	667	667	0	23	20	7	690	686	7
C2008.843	BIKE WEEK	2,000	667	667	667	0	23	20	7	690	686	7
C2008.844	CHILDRENS WEEK	1,000	333	333	333	0	12	10	3	345	343	3
C2008.845	YOUTH WEEK	3,000	1,000	1,000	1,000	0	35	30	10	1,035	1,030	10
C2008.847	OTHER EVENTS SPONSORED	10,000	3,333	3,333	3,333	0	117	99	34	3,451	3,432	34
C2008.860	FESTIVAL OF THE WATERS EVENT	5,000	1,667	1,667	1,667	0	59	49	17	1,725	1,716	17
C2008.861	CC BUSINESS AWARDS-SPONSORSHIP	6,000	2,000	2,000	2,000	0	70	59	21	2,070	2,059	21
C2008.871	NEW YEARS EVENT EXPENSES	6,000	2,000	2,000	2,000	0	70	59	21	2,070	2,059	21
C2008.873	CULTURAL BADGES EXPENSES	3,000	1,000	1,000	1,000	0	35	30	10	1,035	1,030	10
C2008.874	CAROLS EXPENSES	19,000	6,333	6,333	6,333	0	223	188	65	6,556	6,521	65
C2008.875	AUSTRALIA DAY EXPENSES	67,000	22,333	22,333	22,333	0	786	662	230	23,119	22,995	230
C2008.876	SISTER CITY CULTURAL EXCHANGE	5,000	1,667	1,667	1,667	0	59	49	17	1,725	1,716	17
C2008.879	SISTER CITY CULTURAL/SPORTING EXP	6,000	2,000	2,000	2,000	0	70	59	21	2,070	2,059	21
C2008.881	LOCAL GOVERNMENT WEEK EXPENSES	6,000	2,000	2,000	2,000	0	70	59	21	2,070	2,059	21
C2008.882	RACE DAY EXPENSES	11,000	3,667	3,667	3,667	0	129	109	38	3,796	3,775	38
C2008.883	FLORA FESTIVAL EXPENSES	27,000	9,000	9,000	9,000	0	317	267	93	9,317	9,267	93

				Direct Allocation			Indirect Allocation			Total Allocation		
ACCT NO.	**ACCOUNT DESCRIPTION**	**2009**	**GENERAL**	**WATER**	**SEWER**	**DRAINAGE**	**WATER**	**SEWER**	**DRAINAGE**	**WATER**	**SEWER**	**DRAINAGE**
C2008.884	GCC GARDEN COMPETITION	5,000	1,667	1,667	1,667	0	59	49	17	1,725	1,716	17
C2008.885	CHRISTMAS EVENT EXPENSES	5,000	1,667	1,667	1,667	0	59	49	17	1,725	1,716	17
C2008.886	FIREWORKS EXPENSES	5,000	1,667	1,667	1,667	0	59	49	17	1,725	1,716	17
C2008.889	MISC AWARDS EXPENSES	5,000	1,667	1,667	1,667	0	59	49	17	1,725	1,716	17
C2008.890	KEEP AUSTRALIA BEAUTIFUL	1,000	333	333	333	0	12	10	3	345	343	3
C2008.891	SISTER CITY MANAGEMENT PLAN	10,000	3,333	3,333	3,333	0	117	99	34	3,451	3,432	34
O1001.627	CORP.DEV.-RECEPTIONS/CEREMONIES	16,200	13,500	1,350	1,350	0	0	0	0	1,350	1,350	0
O1002.901	1ST LEVEL-CHAMBER REFURBISHMENT CWP 2003	0	0	0	0	0	-959	-808	-281	-959	-808	-281
Accommodation costs to be excluded as already directly allocated												
	Depot rental - erina						74,000	74,000	7,000	74,000	74,000	7,000
	Depot-car parking-erina						16,800	16,800	1,440	16,800	16,800	1,440
	Depot rental - woy woy						9,450	9,450	2,100	9,450	9,450	2,100
	Depot-car parking-woy woy						1,200	1,200	480	1,200	1,200	480
Accommodation expenses that should not be secondary allocated as already primary allocated												
T8001.440	ADMIN SERVICES-ERINA DEPOT	292,599					7,059	4,427	1,218	7,059	4,427	1,218
T8001.441	ADMIN SERVICES-WOY WOY DEPOT	54,231					1,308	820	226	1,308	820	226
	TOTAL CORPORATE EXPENSES THAT APPEAR UNREASONABLE	**2,793,431**		**282,117**	**281,817**	**50**	**112,788**	**109,200**	**13,334**	**394,904**	**391,017**	**13,384**

Annexure B Detailed Project Summaries

Project Title – *JWS Hunter Connection (W5702.906)*

Background – Drought context

In 2004, as a result of the severe drought on the Central Coast, Hunter Water and Gosford Wyong Councils Water Authority (GWCWA) agreed to boost the water main connection between Hunter Water and the Central Coast (Gosford/Wyong) up to 6ML/d through the installation of a booster pump and connection modifications. Council was also investigating desalination as a contingency water resource, as well as new groundwater sources.

At the time, the GWCWA's water resources model indicated that the Joint Water Supplies required an additional 20ML/d for the duration of the drought. Three strategies were therefore developed in parallel – Desalination; the Hunter Connection, and new Groundwater sources (see the JWS Groundwater project summary for details).

Due to the costs associated with desalination, and delays in obtaining regulatory approvals, the GWCWA deemed that it would only develop this option to the point where, if required, it could be implemented with relative ease. It was agreed to progress other more viable options, such as the Hunter Connection, further.

The GWCWA determined that the additional 14ML/d required to ensure security of supply was best delivered by the Hunter Connection. The GWCWA deemed that any expansion of the Hunter Connection would be required to fit in with the long term water resources strategy [which would become known as Water Plan 2050].

As the existing pipeline for the Hunter Connection could not service the pressures required to deliver water >6ML/d, additional investment would be required. The key for the expansion of the Hunter Connection was that the route of the new pipeline was, for the most part, able to follow the route of the existing pipeline. The route was planned though to detour slightly to the west to pick up a future growth area in Warnambol that would soon require a new pipeline to feed the area. Key to the security of supply benefits of the Hunter Connection was the ability to feed treated water both ways, resulting in a mutual benefit for both parties. Joint modelling indicated that expansion of the water supply from the Hunter Connection would be increased further to provide greater long term benefits.

'Pinch-points' were discovered in Hunter Water's network requiring greater flows to Morriset, serviced by an additional pumping station and new pipeline to provide greater capacity. While Hunter Water would benefit from the scheme in the long term, the timing of the scheme was primarily driven by GWCWA.

The GWCWA agreed to pay $3.6M for the Morriset to Wyee upgrade/connection so that Hunter Water would bring the works forward. It was agreed that once Hunter Water used the assets, it would refund the GWCWA half of the original capital cost. The security of supply benefit of the connection has already been used by Hunter Water. It has used GWCWA treated water in the southern part of its network during times of network maintenance, thus negating the need to rezone. We note that, at this point in time the Hunter Connection, including the link to Morriset, was capable of supplying 26ML/d.

Triggers and rules over the use of the Hunter Connection by the GWCWA were agreed. These were based on water restrictions (dam levels) and a joint-sharing of the risk.

As the drought heightened, another change to the negotiated agreement for the use of the Hunter Connection was agreed. An additional 7km of pipe was required to improve the total yield and increase it to 33ML/d. This also involved a pumping station upgrade. The agreement was designed to provide greater security to the GWCWA up to 2026 (for a period of 20 years).

It should be noted that even when the Mardi to Mangrove link is in place, the GWCWA will still require the 33ML/d Hunter Connection to achieve its 2050 water supply demand. Although, due to the higher marginal cost of water, neither the Hunter Connection nor the groundwater sources (similar cost of production per unit volume of water) is likely to be used when water is over-flowing the weirs of the smaller dams in the GWCWA supply area.

Brief Description of Project

During the early period of the drought, the Hunter connection was originally designed to provide 6ML/d of treated water supply from the Hunter Water Authority area to the Gosford/Wyong area. As the drought worsened, the strategic importance of the Hunter Connection became more apparent and an expansion of the connection up to 14ML/d, 26ML/d and finally 33ML/d (with another 2ML/d to come in future) was pursued to improve security of supply primarily for Gosford/Wyong due to the drought. The added benefit came from enabling Hunter Water to also draw treated water into its system from the GWCWA area in

times of need. An operational arrangement was negotiated and a 20 year contract signed, outlining the constraints of use for the connection.

There were four main scheme pipeline components:

- Wyong to North Wyong – at GWCWA cost.
- North Wyong to Bushells Ridge to Morriset – shared cost GWCWA/HWC.
- Hunter system north of Morriset – at HWC cost.
- Additional section in the north of HWC's area - shared cost GWCWA/HWC.

The latter component also included the modifications to the water treatment plant (step screen and pumping station) to provide a more reliable and secure quality of supply. Environmental monitoring is still ongoing and these modifications may not proceed.

Drivers for Investment

This project has a Security of Supply driver which was considered to fall under Growth (new assets and demand) at a time when water supplies were scarce.

Solution Development

Solution development for this scheme occurred cooperatively and iteratively over the course of the drought between the GWCWA and Hunter Water, in consideration of the strategic resource needs amongst other resource options being considered for Water Plan 2050. Solution options were made simpler by the fact that the pipeline route followed the 25m easement set aside for the existing oil/gas/telecoms corridor near the F3 freeway, which helped to 'fast track' the implementation of the project. However, mitigation measures for protecting the oil, gas and internet cables in particular added significantly to the final cost of the project.

In terms of governance, decisions made on the final solution for the Hunter Connection were via a committee (the Technical Advisory Group) comprised of staff from both Councils. Recommendations from the Technical Advisory Group were made to the Board for endorsement, with the final decision resting with both Councils to ratify. Given the severity of drought, the GWCWA called joint meetings/briefings of both Councils to ensure that all communications were the same, and to avoid delays in decision making. The project was deemed an urgent high priority.

Project Delivery

The scheme was delivered through project managers from the Department of Commerce by tendered contractors. The design was completed before the contractors constructing the scheme could provide any input. The project was delivered by contracts in two halves geographically – works north of Morriset were managed by Hunter Water, while works south of Morriset were managed by the GWCWA, primarily by Wyong Council with representation from Gosford on the Committee overseeing the works.

Cost Summary

According to Wyong Council's submission, the total projected capital cost for the project was $39.73M and it was delivered under this for $36.23M, with the costs being shared equally between Gosford and Wyong Councils managed through the Joint Water Supply (JWS) Agreement. The scope increase doubled the costs from the $17.97M reported to IPART in 2005. This was due to increasing the transfer rate up to 33ML/d (works completed in 2007/08 to 2008/09) to provide drought relief, and also works to improve and ensure transfer reliability (security of supply). The scheme also received a contribution of $4.8M from the Federal Government via a WaterSmart grant.

Assessment of Prudence

Given the need for drought relief to be delivered quickly during the course of the worst drought on record, and the fact that other resource options such as desalination and groundwater were less viable or more expensive, the Hunter Connection project was the one major alternative resource to supply customers in the Gosford/Wyong area. We therefore believe that the project was a prudent choice to address the water shortages of the drought. Subsequent yield increases and additional security/reliability measures incorporated into the project since the last Determination have doubled the cost of the project. The approach adopted compliments the strategy outlined in Water Plan 2050 and provides security of supply in the future to both the GWCWA and Hunter Water, initially for a period of 20 years.

Project Title – *JWS Groundwater Schemes (W5720 to W5731)*

Brief Description of Project

In order to potentially increase the available water supply yield, the GWCWA, undertook a widespread investigation of the region to determine the availability of reliable groundwater supplies to supplement supplies during the drought.

Due to the location of the bore fields, this particular Joint Water Supply (JWS) scheme has been primarily managed by Gosford City Council.

Table B1 JWS Groundwater Borefields and yields

Borefield Name	Number of Boreholes	Yield (Ml/d)
Ourimbah	10	1.37
Mangrove Weir	3	1.27
Mardi	1	0.12
Braithwaite Park	1	0.14
Somersby	3	0.14
Narara	4	2.07
Town Water Replacement		0.22
Woy Woy	14	3.84
TOTAL	36	9.17

Drivers for Investment

The primary driver for investment was the longstanding and worsening drought conditions adversely affecting the dam water storage levels. Due to the fact that Level 4 water restrictions were in force, it was deemed to be both necessary and appropriate to investigate additional sources of potable water. The successful location of a viable groundwater source would improve the security of supply for the region and enhance the available sustainable yield.

Solution Development

Following the identification of a large aquifer in the region (for irrigation purposes), Council engaged Hydrologists to investigate the potential for potable groundwater sources across the region, where no such hydrological assessment had been conducted previously.

In total 110 test boreholes were drilled across the region from the coast to the hinterland, and 7 separate bore fields (producing a potential yield of ~ 9.1 Ml/d) were identified.

The selection of the sites identified above was based on the location and yield of the bore field and proximity to an existing water treatment works.

Council advised that prior to long term usage of the groundwater sources, a prolonged monitoring period was required by the DWE in order to verify the reliability of each of the groundwater sources and the sustainability of the yield, at a cost to the JWS of circa $400k /bore field/year.

We found that sensitivity testing of the available yield was also undertaken in relation to the above monitoring, which has resulted in the downgrading of the available reliable yield to circa 7 Ml/d.

For each of the bore fields a variety of options were considered including:

- Treatment of groundwater on site.
- Transfer to a nearby WTW.
- Transfer via WPS to a raw water bulk storage reservoir.

Whilst transfer options were adopted for most sites, a standalone membrane 'Ultra' filtration plant was proposed, for Woy Woy, with pre-treatment for iron, manganese, colour and turbidity.

Project Delivery

At the time of review we found that production bore fields were commissioned and operational, with the exception of some minor capital works still remaining on the Narara bore field, which will provide additional yield to the main bore field.

Due to the disparate location of the bore fields and varying solution development timescales, each site was procured and delivered as a separate project. Within Gosford City Council's AIR, 12 separate projects were established (with project identifiers W5720 to W5731).

Within each project, each element was separately procured either on a supply and install or individual contract basis. A small project delivery team was used to manage the delivery of the projects via Schedule of Rates contracts and tenders for discrete packages of work. We highlighted that this was an inefficient method of delivery that restricted the potential for economics of scale, however Council argued that the urgency to identify and commission alternative water supplies necessitated this 'fast track' and less efficient approach.

Cost Summary

We find that the initial estimate for delivery of a number of undefined borefields, delivery circa 17 Ml/d was $18M.

According to the latest budget an estimate of $21M has been allocated to deliver a reliable yield of circa 7 Ml/d, with a final revised estimate of circa $30M expected to complete the cluster of schemes. A summary of the variance in estimates for each scheme are detailed below:

Table B2 JWS Groundwater Scheme Expenditure

Project	Potential Yield (ML/d)	2006 Determination Estimate	Current Approved Funding	Expected Outturn
Ourimbah	1.37	$ 6,223 k	$ 6,225 k	$ 6,223 k
Margrove Weir	1.27	$ 2,616 k	$ 2,944 k	$ 2,944 k
Mardi	0.22	$ 261 k	$ 262 k	$ 262 k
Braithwaite Park	0.14	$ 210 k	$ 210 k	$ 210 k
Somersby	0.14	$ 446 k	$ 481 k	$ 481 k
Narara	2.07	$ 2,491 k	$ 5,410 k	$ 7,373 k
Town Water Replacement	0.2	$ 2,367 k	$ 2,799 k	$ 2,799 k
Woy Woy	3.84	$2,230 k	$2,175 k	$8,216 k
Erina	0	$ 637 k	$ 720 k	$ 720 k
Graham Park	0	$ 574 k	$ 600 k	$ 600 k
Total		**$18M**	**$21M**	**$30M**

We challenged the nature of this significance variance (circa 75 %) from the 2006 Determination to the expected out-turn cost and Council advised that the variance was due to the fact:

- Groundwater sourcing had never before been undertaken by the GWCWA.
- The preliminary investigation was exploratory and not well defined.
- Membrane Ultra filtration was required at the Woy Woy Borefield.
- Unforeseen and extensive environmental monitoring was required to prove the available yields.
- Resultant reduction in reliable yield.

Assessment of Prudence

Given the high (and escalating) capital cost and reducing yield, in hindsight the prudence of the groundwater schemes is questionable.

The groundwater schemes formed part of a number of emergency drought alleviation projects initiated and delivered concurrently by the JWS. As such, should one of the alternative drought alleviation projects deliver appropriate volumes of potable water, there is a likely risk that the borefields will not be required and potentially 'mothballed'. The membrane filtration plant at Woy Woy also requires continuous operation (5ML/week) in order to be available for use to provide up to maximum source reliable output, resulting in either unnecessary ongoing operational costs or the potential de-commissioning of an expensive asset in future.

Due to the expediency required to locate alternative supplies the groundwater schemes were 'fast tracked' at the expense of efficiency. During our review we saw no substantive evidence that the cost effectiveness or prudence of the schemes were challenged.

The method of procurement was also inefficient, as Council did not take advantage of the benefits that clustering of similar type schemes and would have had on both procurement and capital costs.

Not withstanding the above factors, we acknowledge the desperate water resource situation facing the Central Coast, and recognise the need to explore all ground water resource options available and to implement solutions as quickly as possible regardless of the relative cost effectiveness of delivery. For this reason we believe that the need for the investment to be prudent, although not cost effective.

Project Title – *Mardi to Mangrove Transfer System*

Brief Description of Project

Wyong Shire Council on behalf of the GWCWA proposes to construct a nominal 20km 1000mmØ transfer main, providing an additional link between Mangrove Creek Dam and Mardi Dam.

The project, which also includes the construction of two large capacity pumping stations, a 2.6km rising main, a low flow fishway and modifications to the inlet/outlets, will enable additional water to be extracted from Wyong River and Ourimbah Creek during medium to high flows, and allow environmental flows on the Wyong, Mooney and Mangrove Rivers.

Drivers for Investment

Within its AIR, Wyong Shire Council has identified 'growth' to be the primary driver for investment.

Whilst the project will increase the available yield within the Gosford/Wyong area, we believe the purpose of the scheme is to provide security of supply, during periods of drought. In addition to this, completion of the project will allow for environmental flows on a number of rivers. As such, the 'mandatory' driver may be more appropriate for this scheme.

Solution Development

In 2001/02, the Department of Commerce undertook a review of the long term water supply situation in the Central Coast. This was used as the basis for the identification of drought remediation measures and the development of Waterplan 2050.

Within this review, a number of alternative water supply options were considered, including, amongst others:

- Mardi to Mangrove Transfer link.
- McDonald River link.
- New coastal dam.
- Upper Wyong River Pumping Station.
- Water re-use/Effluent re-use.
- Groundwater.
- Rainwater tanks.

We were advised that all options were issued for public consultation. The results of this were then reviewed by the JWS Technical Advisory Group, the JWS Board and both Councils, and the preferred option (Mardi to Mangrove Transfer) was agreed.

In order to progress the development of this scheme, a Special Projects Team (SPT) was engaged. The SPT consists primarily of Wyong Shire Council staff and consultant designers. To add governance to the process, a Project Control Group was established to oversee the development process.

At the time of review, the concept design work was nearing completion. The SPT had commenced detailed engineering and geotechnical investigations and on-site survey work. Environmental data collection activities were also underway.

The nominal scope of the proposed work includes:

- 320 Ml/d pumping station to lift water from Wyong River to Mardi Dam.
- 2.6km rising main from Wyong River to Mardi Dam.
- 120 Ml/d pumping station to lift water from Mardi Dam to Mangrove Creek Dam.
- 20km 1000/1200mmØ rising main, including various river crossings.
- Inlet/outlet upgrades at Mangrove Creek Dam.
- Low flow fishway.
- New gauging station.

Project Delivery

We were advised that the contract is due to be let in 2009, with completion forecast for late 2010/early 2011.

For a scheme of this size and complexity we queried the relatively tight delivery timeframe. Wyong advised that a similar length pipeline (albeit smaller diameter) for the Hunter Water Transfer System was completed in 6-7 months.

Cost Summary

We found that the current estimate of $110M ($55M for Gosford) was based on a high level costing exercise, undertaken by Quantity Surveyors, using a number of broad scope assumptions. We believe an estimate of this nature to be accurate to +30% and may be subject to further variance.

We were advised that the project has received grant funding approval of $80.3M from the Federal Government, and a steering committee has been established to

manage the expenditure of this grant. We found that the grant is time limited and will need to be spent by 2010. This represents a significant risk to the JWS, although Wyong is confident that grant deadline will be extended, should it be required.

Assuming full realisation of the $80.3M grant, the GWCWA will need to finance the remaining $30M.

Assessment of Prudence

In terms of maximising available storage capacity and future proofing the Central Coasts water supply, the Mardi to Mangrove Transfer system represents a sound investment decision.

In reviewing the scheme, we saw evidence of that customer support for the project had been sought, and an internal governance structure has been built into the process to ensure that efficient delivery of the scheme.

Cost estimates are still at an early stage of development and may be subject to further variance and possible escalation, although the $80.3M Federal grant significantly reduces the financial burden on the JWS.

Wyong has taken steps through a joint steering committee to actively manage the expenditure of the grant funding and this should be continued to ensure all funding deadlines are met.

Taking into account the above uncertainties, we believe the Mardi to Mangrove Transfer system to be prudent and that it represents good value for money.

Project Title – *Watermain Replacement – Peats Ferry Bridge*

Brief Description of Project

As part of the Hawkesbury Villages PSP – Stage 1 solution, Council is required to lay a sewer main across the Hawkesbury River, via the Peats Ferry Bridge, which is a strategic bridge with a heritage listing. As access to the bridge is both restricted and difficult, Council has opted to replace an existing 150mmØ water main that also crosses the bridge, at the same time.

This opportunistic project will involve the replacement of a deteriorating 150mmØ cast iron main with a 200 mmØ ductile iron (epoxy coated) main.

Drives for Investment

The water main is approximately 40 years old and showing significant deterioration through salt water corrosion. The main has been subject to numerous leaks and is in need of maintenance. As such the primary driver for investment is 'existing mandatory'.

In addition to this, Council has included a 'growth' element, (reflected in the 150mmØ to 200 mmØ up size), to account for additional demand resulting from the PSP scheme.

We note however, that the growth element of the scheme has not been separately accounted for within the AIR, as prime purpose allocation has been adopted by Council.

Solution Development

In developing the options for the bridge crossing, consultants were engaged to design both the sewer and watermain crossings as a separate stand alone project.

In considering alternative options Council investigated the viability of tunnelling under the river, but based on Sydney Water experience with the similar Danger Island to Brooklyn tunnel, this was not deemed to be a viable alternative.

Council has opted to replace the existing 600m of 150 mmØ CICL with an equivalent length of 200mmØ DICL. To ensure maximum corrosion resistance, the new main will be coated with an epoxy lining.

Project Delivery

We found that Council has contracted out the watermain replacement through open tender, which gave contractors the ability to suggest alternative options and delivery strategies.

Due to the complexity of the scheme and high degree of uncertainty, the contract is primarily based on a schedule of rates, with some lump sum items. This enables Council to share the risk.

The project is currently estimated to be 30% complete, with preliminary works completed and scaffolding currently in place. Completion of the scheme is anticipated by the end of 2008.

Cost Summary

As noted earlier, the sewer and watermain crossing of Peats Ferry Bridge was developed as a joint project. Initial costs were built up on a systematic basis, using rates from Council's existing schedule of rates, contract and estimates of RTA fees. The total cost (circa $2M) was then split on a 50/50 basis between the sewer and water main. As such Council has assumed a capital cost of $1M to replace the watermain, which equates to a unit cost of ~$1600/m. A contingency allowance of 15% has been applied to both the direct and indirect cost components.

A tender price of $1.3M was ultimately agreed, which is exclusive of fees and preliminaries. Council has assumed $0.7M of the tendered price reflects the watermain element. The agreed tender suggests that Council has allowed a further $0.3M for indirect pre-construction costs, project management and a 15% allowance for contingencies, which seems quite high considering the high level of project definition.

Assessment of Prudence

Given the difficulties in obtaining access to this RTA owned asset, it would appear prudent to opportunistically replace the watermain across the Peats Ferry bridge at the same time as the planned and necessary sewer main link, and thus share the indirect costs.

However, we found that the bridge itself will require maintenance in the future, which will require the temporary removal of all services, at additional cost to Council, which will impact on the cost effectiveness of this scheme.

We found that the Council had liaised with the RTA on this matter, however, it was unable to provide Council with its timeframe for bridge maintenance and unwilling to work in with the Council's construction timeframe.

Project Title – *CBD Reticulation Upgrade - Gosford (W5720 to W5731)*

Brief Description of Project

The Gosford CBD upgrade (reticulation & sewerage) projects were included within the 2006 Determination. However, the NSW Minister of Planning subsequently made changes to the Local Environment Plan (LEP) such that the height and density of development was increased significantly from a growth target of 11,000 to 18,700 people, taking the total population in the CBD up to 29,700 by 2032.

This policy change required extensive remodelling of the impact of growth on the water and wastewater infrastructure in Gosford CBD in order to revise Council's former Development Servicing Plan (DSP).

Drivers for Investment

The primary driver for investment is growth. The design horizon is 25 years, however headworks for water supply is sized up to 2050.

Levels of service were also identified as an issue for wastewater particularly. The main trunk sewer in the network is at capacity and was deemed to require upgrading in 2005/06. The catchment has an inflow/infiltration problem because the CBD contains the original sewers laid ~70 years ago.

Solution Development

Wastewater

A number of options were considered through were modelled by HR Wallingford in the UK to meet population growth (growth proportioned as per the current population for each node by sub-catchment) up to almost 30,000 by 2032. The two main options were:

- Upgrading of the old wet well/dry well Pumping Station and associated rising main
- Keeping existing assets and downgrade, reline existing network (particularly in places where buildings sit over the sewer) and pump through the existing rising main. Build a new pumping station and pump the other half of the flow through the new pumping rising main routed around the network constriction of the existing system.

It is expected that the new carrier trunk sewer in combination with the new feeder sewers linked to the new developments will lower infiltration overall and provide the capacity for future growth.

Water

On the basis that the sewer augmentation works are required to meet the revised growth forecasts, and in support of the next LEP and DSP, we believe that the modelling and options considered have been to a sufficient level of detail and analysis to justify the need for expenditure.

Project Delivery

It is anticipated that the delivery work for the sewer upgrade would proceed starting from the downstream end of the catchment, with the contractors working their way back upstream. It is believed that while the timeframes for delivery could change, the overall out-turn costs upon completion will be similar to those in the current Determination.

The project is designed to be staged (where constructability allows) in line with the growth nodes in the CBD according to the Council's strategic growth plans over time from 2009, with both the growth rate and associated capital spend peaking in 2017 until final completion in 2021. For wastewater, the project has been staged in 19 parts (by year) but with delivery constraints in mind.

The cost estimates have been built up from first principles based on schedules of rates for contractor labour used previously and unit rates for materials eg. pipe lengths. Costs also include items such as traffic management, excavation, plant operation/equipment hire, design, survey work, connections to the network, restoration and pipe replacement/new lay techniques and new pumping station civils and mech/elec. We note that the costs are very detailed and reflect the complexity of the work to be undertaken in a built up area of Gosford and hence the unit rates are quite high – average of $1,664/m ranging from $480/m to $2,633/m – due to the nature of the work required to install quite long runs of pipe in a built up area that are mostly >300mm up to 525mm in diameter.

Within each sub-project, each element appears to be separately procured either on a supply and install or individual contract basis. As for the groundwater schemes, it appears that a small project delivery team will be used to manage the delivery of the projects through the use of Schedule of Rates contracts and tenders for discrete packages of work. We highlighted that this was an inefficient method of delivery that restricted the potential for economies of scale, particularly when the project is mainly a planned activity related to future growth that lends itself to

being staged over time perhaps with other similar work at the same time. A Panel arrangement may suit the delivery of this type of work over time, where consultants/contractors performance can be reviewed and compared once every Determination period.

Cost Summary

Council are currently in the process of costing developer contributions as per the most recent IPART methodology for determining such charges.

The approximate total cost for CBD Upgrade project for water and wastewater will total $6M from developer chargers attributable to growth and $3M for compliance/mandatory standards.

We found that the initial estimate for delivery of this growth project is a total of $9M split one third between mandatory standards/compliance ($3M) and two thirds for the growth driver ($6M) to be funded by developer contributions.

The latest SIR/AIR for Council's submission shows the following spend profile in 2008/09 dollars for the water and wastewater CBD growth projects:

Table B3 CBD Retic Upgrade Capital Expenditure Profile

Project	Actual and Budgeted Capex			Forecast Capex				Total
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	$2008/09
Gosford CBD Retic Upgrade - Water	2	1	187	167	159	143	162	821
Gosford CBD Upgrade - Sewer [Augmentation]	6	10	174	131	152	412	473	1359
Total	7	11	361	298	312	555	635	2180

Expenditure on this scheme has not been significant during the first two years of this Determination period. The expenditure increases from 2008/09 onwards and is forecast to rise steadily by 2012/13. The total expenditure from 2006/07 to the end of 2012/13 is forecast to be $821K for water and $1.4M for wastewater , which indicates that it will be a number of years before both projects (water and wastewater) will be fully expended ($9M).

Assessment of Prudence

Given the relatively high level of confidence in this scheme in the past and the subsequent planning decision from the NSW Planning Minister, we believe that this scheme including both water and wastewater is prudent. Although the capital cost has increased since the previous Determination, the reasons for this are understood and the resulting scheme changes and capital costs are based on revised modelling of the water and wastewater networks.

Although the developer charges will effectively fund two thirds of these two projects, the remaining one third of funding has been requested for maintaining mandatory standards and levels of service.

We believe that while the cost estimates used to derive the scheme are detailed and relatively accurate, efficiencies might be achieved during procurement and delivery of the scheme. Council could achieve efficiencies by delivering the CBD growth projects for water and wastewater through a panel arrangement. Tenders could be sought from the panel for works over a certain cost threshold, e.g. $250K. Members of the Panel could be reviewed once every Determination period.

Project Title – *Gosford City Council – WMR Program (W2304.9XX)*

Brief Description of Project

Council's annual Water Mains Renewal Program (WMR) is designed to replace water mains with a high risk/failure rate, indicating that the infrastructure assets are nearing their useful life. Historically, Council has only had a budget of ~$1M per annum to renew water mains, based on a global assessment of renewals by pipe age. However, in its 2008 Submission Council is seeking to effectively double its annual WMR program budget to an average of $2.3M per annum from 2009/10 to 2012/13.

Council has indicated that this increase in expenditure is necessary due to continued high levels of water main failures attributable in part to drought impacts on soil stability. The WMR program appears to compliment the Water Quality 2010 initiative which includes, amongst other things, modifications to the water treatment process and reservoirs to improve water quality and lower the number of customer complaints.

Drivers for Investment

The driver for WMR is to maintain existing mandatory standards through the continued serviceability of the water network, to deliver quality water to customers at an acceptable but stable rate of failure, both in terms of the Council's overall water network and burst rates in line with industry best practice.

Solution Development

Council's WMR program is assessed using the "Water Mains Replacement Assessment" spreadsheet. Priority scores based on certain weighting criteria are calculated by way of the weighting formula which is defined as follows:

Priority score = (2 x Benefit/Cost ratio) + (1 x 3-year Breaks Average) + 0.5 x 7-year Breaks Average) + (1 x Customer Impacts) + (1 x Operational Risk) + (1 x Environmental Impact)

Firstly, all breaks history data is downloaded from the Council database. It is sorted by 3-year and 7-year breaks and all previous renewed pipes are removed. Long roads with multiple bursts are then segmented into manageable lengths. The resulting table is then shortlisted to provide the top 20 to 25 streets with the highest burst rates. The data is analysed and reviewed with Operations. Generally Council finds that all the water mains most prone to bursting are all listed within the shortlist.

Renewals costs, based on historical cost rates data (in the past reference rates from DWG were used), are then attributed by pipe diameter to the renewal lengths (not necessarily the whole street length). Sections of pipe which are still serviceable are not renewed.

Water mains with the most recent (3 year) high failure/break/burst rates are identified in the list, although, we note that the overall priority score is also heavily weighted towards the benefit /cost ratio value.

Weighting criteria:

- The benefit/cost ratio is calculated using a Sydney Water spreadsheet model [ECONV68] which assesses the financial benefits of proposed capital works over a 30 year period. The options of replacement, versus maintenance and repair (calculated using an average rate of breaks assumed over 3 years) are assessed using a discount rate of 7%. The costs incorporate an assessment based on real jobs (materials, labour hours, pipe size) and include for individual site factors such as main depth, location and restoration costs etc.
- Breaks data is sourced from the water mains break database maintained by the Water Operations Group, and which includes maintenance data for the water supply network.
- Customer impact is assessed based on either of the following two factors:
  - Water [flow] damage from mains failure (property damage recorded with mains breaks data and insurance claims data);
  - Traffic disruption.

  They are scored from Nil (0 points) to Major (3 points) according to a simple impact assessment ranging from 'no water flow to private property / no disruption to traffic' up to 'water flow to private properties resulting in damage to buildings/built structures / full road closure with detours' respectively.
- Operational Risks are assessed based on either of the following two factors:
  - Service interruption times and number of properties affected (average taken for subject main over the last 7 years data available);
  - Critical customers affected eg. dialysis patients and large industrial/ commercial customers.

  They are scored from Nil (0 points) to Major (3 points) according to a simple impact assessment ranging from '<3 hours service interruption (average) / < 20 properties affected' up to '> 5 hours service interruption (average) / > 150 properties affected / Critical customers affected eg. dialysis patients or commercial/industrial water users' respectively.

- Environmental impacts are assessed on either Water flow and erosion / siltation impacts based on available stormwater plans identifying environmentally sensitive areas such as SEPP 14 wetlands etc.

  These factors are scored from Nil (0 points) to Major (3 points) according to a simple impact assessment ranging from water flow contained to Council stormwater network / no erosion/siltation from site' up to 'water flow not contained in Council stormwater network / significant erosion/siltation to protected environments' respectively.

Project Delivery

Water mains renewals are delivered currently by an in-house team of Council employees which is geared up to undertake a set amount of work budgeted each year. This team also works on other infrastructure assets such as the sewer and stormwater networks. Hence, it can be limited by time over the course of any given year.

Renewals are undertaken on a jobs basis and planned over the year according to the priority ranking afforded by the Water Main Replacement Assessment spreadsheet. Operational or other external reasons may result in a particular renewal being undertaken before one of higher priority.

Cost Summary

The capital expenditure required for the WMR program of works was previously based on an assessment of water pipe asset age and an assumed percentage renewal over time. Council's actual and proposed expenditure profile from 2007 to 2013 is as follows:

Table B4 WMR Program Proposed Capital Expenditure ($000 2008/09 real)

Actual and Budgeted Capex			Forecast Capex				Total Actuals	Total Forecast
2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2007-2009	2010-2013
1,836	1,043	1,062	1,269	2,684	2,684	2,589	3,941	9,225

The average forecast expenditure on water mains renewals over the coming Determination period is $2.3M per annum. This is a 130% increase over the previous budget allowance of $1M per annum.

In terms of the ongoing water main renewals program (WMR), we do not believe the current perceived level of system performance justifies the proposed 130% year on year increase in mains renewals. In addition, we believe that there is scope to further reduce the unit cost of mains renewal activity by reconsidering the approach to delivery of the program. A longer term strategic view of requirements will enable more efficient procurement practices to be adopted, which could further reduce unit costs by 5-10% year on year.

Assessment of Prudence

Whilst a larger WMR program, over and above the current budget allowance, may be necessary in the future, Council has not yet undertaken the necessary asset management studies to determine what level of expenditure will be required. Council has completed some analysis of overall network water mains breaks data since the early nineties, and undertaken comparisons with SWC and Wyong Shire Council. However, the analysis is not conclusive enough to suggest that the WMR program needs to be more than doubled within the next Determination period.

We believe that the WMR program is prudent but we don't believe that the increase in the level of expenditure proposed is justified. We note however that the aging asbestos cement pipes have been causing particular problems for Council in recent times. Given that more work (condition assessments etc.) will be done to understand the risk of asset failure, a modest increase in expenditure at just above the levels expended during the drought of approximately $1.6M per annum would be more prudent. This represents a 60% increase over current annual budget levels and 50% of the average annual budget increase requested in the Submission. The revised annual average figure is closer in value to the average annual forecasted budget figure assumed for 2009 to 2012 in the Council's Water budget forecasts from 20008/9 to 2030/31.

The recommended expenditure profile that we have suggested for 2008/09 to 2012/13 may be found below.

Table B5 WMR Program Recommended Capital Expenditure ($000 2008/09 real)

					Average annual Spend	Total Recommended WMR
	2009/10	2010/11	2011/12	2012/13	2009-2013	2009-2013
Proposed WMR capex	1,269	2,684	2,684	2,589	2,306	9,225
Recommended re-profile	1,450	1,533	1,635	1,587	1,551	6,204
Less 5% procurement efficiency	(72)	(77)	(82)	(79)	(78)	(310)
Halcrow WMR recommended capex	1,377	1,456	1,553	1,508	1,473	5,894

Historically, the majority of the mains renewal activity has been delivered in-house. Although, performance has been benchmarked against the private sector on an individual 'job' basis, we believe that Council should consider outsourcing all of its Mains Renewals activity, particularly as the program reaches a more critical mass of sustainable work. This will enable further efficiencies to be achieved, and would free up the in-house resources to focus on undertaking more maintenance/renewal works on other types of asset such as sewers and drainage networks.

We recognise that the Council is planning to undertake pipe condition assessments on high risk water mains to improve future asset management practices and to provide the basis for a risk-based assessment renewals program for water mains. We commend this initiative as this approach demonstrates best practice. Such an approach will help ensure the prudence of future WMR programs, particularly if they include the renewal of larger high risk water mains before they fail and adversely impact on customers.

In future, we expect increases in expenditure in the order of those proposed in Council's 2008 submission, justified robustly with supporting asset investigations (including AC mains and testing of their 50 year theoretical asset life), data analysis and the formulation of a condition and performance / risk-based asset management strategy for WMR.

Project Title – *JWS Gosford Water Factory (W6705)*

Brief Description of Project

Council proposes to construct a small scale water recycling works - 'Water Factory' in the Gosford CBD area to act as an educational/communications tool, to promote and demonstrate alternative water supply options.

It is Council's intention to construct a 'state of the art' facility, with architectural merit that would promote and encourage tourism to the Gosford CBD.

Drivers for Investment

The nominal driver for this investment is the drought and the need to demonstrate to the community the alternative water options being pursued (as part of WaterPlan 2050), whilst water use restrictions were in force.

We are concerned however, that the real driver for this investment is the desire to promote tourism to the central coast, which we do not believe should be an objective of the water business.

Solutions Development

Council engaged an Architect to develop an Architecture Plan for the 'Water Factory', to conceive a structure that is both functional and prominent.

A 'bubble' shaped translucent building has been proposed located over Brisbane Water.

Project Delivery

At the time of review we found that a Quantity Surveyor had also been engaged to review the proposed layout and develop an indicative cost estimate. The scheme is not forecast for completion until 2015/16.

Cost Summary

We found that the initial cost estimate was based on a review undertaken by an independent Quantity Surveyor, and is inclusive of a 25% contingency allowance.

Council has assumed a moderate spend profile over the course of the 2009 Determination period, to undertake the concept design and pre-construction activities, with the majority of construction spend forecast for the 2014 Determination.

As the 2009 Determination will exclude recycled water, our recommended capital expenditure for Council's proposed capital program excludes these recycled water schemes.

Assessment of Prudence

In the context of period charges we do not consider this scheme to be either prudent or cost effective.

Whilst the Gosford Water Factory would provide a useful educational facility to the wider community and create a marquee landmark within the Gosford CBD, we do not consider the promotion of tourism within the Central Coast to be an objective of the JWS that should be funded through water rates.

The volume of water produced by the Water Factory and high unit cost of this water does not compare favourably with other alternative water supply options. As such, the high capital cost is not justified.

Should the JWS wish to promote WaterPlan 2050 in a tactile manner, then a more prudent design may be more appropriate, utilizing an existing water re-use plant

Project title – *JWS Woy Woy Water Recycling Project (W6707)*

Brief Description of Project

Council proposes to construct a water recycling plant near Woy Woy STP, to utilising membrane filtration and UV treatment technology.

The purpose of the scheme, which also includes the construction of a recycled water reservoir and 17km of 'third pipe' reticulation, is to relieve pressure on the existing alluvial sand groundwater aquifer, by providing an alternative source of 'external use' water.

Drives for Investment

The main driver for investment is the drought, which has been recorded against the 'discretionary' investment driver.

There are a large number of private 'spear points' in the Woy Woy area, drawing water for external use from the alluvial aquifer, adversely impacting on the recently completed ground water supply. It is Councils intention to provide these private extractors with an alternative source of 'external use' water and thus preserve the aquifer and increase the potential yield of the Woy Woy Borefield. An alternative to this is that the Council could use the recycled water to recharge the aquifer.

Solution Development

The Woy Woy water recycling plant was initially identified as a drought alleviation measure in the initiatives report used to formulate WaterPlan 2050.

The proposed solution, which is of a conceptual basis, involves the construction of a membrane filtration plant with UV treatment, a treated water reservoir and a 'third pipe' reticulation network. The project scope was based on a desktop review of the scheme.

We found that the solution is based on an 80% uptake of the current groundwater users (which includes a 100% uplift for unidentified groundwater users).

Project Delivery

The scheme which has a long lead time, is in the early stages of development, and is not due for completion until 2015/16.

As such, Council has not yet considered a procurement strategy or delivery profile.

Cost Summary

Initial costs were built up on a unit cost basis, using current schedules of rates.

As mentioned above, Council has assumed a long lead time on this project, with spend forecast up to 2012/13 to undertake the concept design and other preliminary activities.

As the 2009 Determination will exclude recycled water, our recommended capital expenditure for Council's proposed capital program excludes these recycled water schemes.

Assessment of Prudence

As with the other proposed water recycling schemes, whilst we acknowledge the need to promote alternative water resource options, in the context of the period charges we do not consider this scheme to be either prudent or cost effective.

The scheme was initially conceived in conjunction with a number of other drought alleviation options (including the JWS Groundwater scheme), many of which we consider to be more viable.

The scope of the scheme, and overall cost effectiveness is based on the broad assumptions, that 80% of the known private extractors will opt to switch to the recycled supply and that the overall number of private extractors is double the number currently known. It is our view that Council has overstated these assumptions (which have little basis) and that the level of take up will be quite low, as we do not believe customers would opt for a high cost recycled supply, when an existing low cost supply is already available.

If this is the case, the only alternative use of the recycled supply would be to recharge the alluvial sand aquifer, for use by the Council Woy Woy Groundwater scheme. This would result in the double treatment of water significantly increasing the unit cost of the groundwater source.

Project Title – *JWS Gosford CBD – Recycled Water Scheme (W6705)*

Brief Description of Project

As part of the growth related upgrade of water and wastewater infrastructure within Gosford CBD, Council intends to provide a separate recycled water network within the CBD. It is expected that all future CBD developments will connect to the 'third pipe' network and all nearby playing fields would be irrigated using the recycled water.

It is anticipated that this would be a 'flagship' recycling project.

Drives for Investment

Within its AIR, Council has indicated the main driver for this investment to be 'discretionary', however we were advised that the provision of recycled water to the Gosford CBD was a condition of the Gosford CBD LEP, which would suggest the driver to be 'mandatory' or 'growth' related.

It was also made apparent to us that a primary driver for the scheme was to demonstrate Gosford as a 'green city' with strong environmental credentials. Whilst this is an admirable ambition for Council, it is questionable as to whether this ambition should be funded by the water business.

Solution Development

- Council engaged consultants to look at a variety of recycled water options for the overall city centre. The review indicated that sewer mining would be the preferred option with associated treatment and 'third pipe' reticulation throughout the CBD. It is anticipated that the 'third pipe' network would follow a route that would enable access to all development areas and Council owned playing fields and would reduce demand in the CBD by 2.4 ml/d.
- At the time of review, the proposed scheme was at a preliminary investigation stage. A desktop exercise had been completed to determine potential locations for the sewer mining and associated WTP and the potential route of the 'third pipe' network.

Project Delivery

This project has a relatively long lead time and is dependant on developer take up within the CBD.

Limited activity is forecast over the period of this Determination, with approximately 1.6km of the 'third pipe' network to be land through the Zoo between 2009 and 2013. It is anticipated that the bulk of the scheme will be delivered between 2013 and 2022.

The procurement strategy has not yet been decided although it is anticipated that separate tenders will be let for the various elements of the scheme.

Cost Summary

Initial cost estimates have been built up on a first principles basis using known contract rates and material cost. Given the uncertainty of the solution scope, 20% contingency has been allowed for a number of the elements.

Council's costs are based on the assumption that there will be a 70% uptake by developments of Council's 'third pipe' recycled water scheme, and that the resultant developer contributions would finance the scheme.

As the 2009 Determination will exclude recycled water, our recommended capital expenditure for Council's proposed capital program excludes these recycled water schemes.

Assessment Prudence

Given the high capital cost, high unit cost of water, high level of uncertainty over developer take up within the Gosford CBD and the fact a number of more cost effective water resource options are being concurrently progressed, in the context of period charges we do not consider the Gosford CBD – Recycled Water scheme to be a prudent or cost effective alternative resource.

Whilst the scheme may improve the 'kudos' of Gosford City and raise its profile as a 'green city', we do not believe this ambition should be funded through water rates.

However, we acknowledge that the availability of recycled water is a condition of the Gosford CBD LEP and recognise that some provision needs to be made. To their credit Council has assumed a long lead time for this scheme, that ensures progress is dependent on developer take up. With this in mind we consider it would be prudent to lay a 'third pipe' network in conjunction with the planned network upgrade of the Gosford CBD.

Project Title – *Hawkesbury Villages PSP – Stage 1 (S5300)*

Brief Description of Project

The purpose of this scheme is to provide a sewered connection to 250 properties within the Mooney Mooney, Cheero Point and Peat Island communities.

Drivers for Investment

The main driver for investment is Council's obligation to meet the objectives of the NSW Governments priority sewerage program, by providing sewer connections to a high priority 'backlog' area.

In addition to the above, there is also a strong environmental driver, whereby delivery of the scheme would reduce pollution of shellfish waters within the Hawkesbury River.

Solution Development

In developing a solution for the Mooney Mooney, Cheero Point and Peat Island communities, Council considered a number of alternative options, including:-

- a low pressure scheme.
- a gravity scheme with transfer pumping.
- a vacuum scheme.

On the basis that a traditional gravity scheme is an expensive option and a vacuum system utilises old technology, Council has opted for a low pressure scheme. This preferred option involves the installation of individual grinder pumps on each of the 250 new connections, a pressurized collection system, and a transfer main, for conveyance of effluent across the Hawkesbury River (via a bridge crossing) to the Brooklyn STP, an existing Sydney Water asset.

Due to the shared infrastructure and a joint benefit derived, it was agreed to deliver this as a joint scheme with both Sydney Water and the Dep[artment of Ageing, Disability and Home Care (DADHC), in terms of both costs and actual delivery. It was agreed that Sydney Water would retain ownership of the joint infrastructure, whilst Council would own the collection system.

Project Delivery

Council advised that due to the complexity of the shared ownership, and need to deliver this scheme as efficiently as possible, consultants were engaged to develop a procurement strategy.

At the time of the review we found that the shared infrastructure element of the scheme (with Sydney Water) has been completed. A 'Design and Build' contract has been let to complete the collection system, and the pressure mains within the streets have been completed.

Separate contracts have been let (or are in the process of being let) for the mech/elec elements of the low pressure system and the bridge crossing.

We were advised that the scheme was approximately 70% complete, although the more difficult 30% of the project remains to be delivered, including the bridge crossing.

It is anticipated that the scheme will be delivered by March 2009, and we see no reason to doubt this will be achieved.

Cost Summary

We found that the initial estimate for the delivery of this scheme was $4.4M (in 2002 prices) which was based on a desktop review of the project scope.

As the solution definition improved, costs have continued to be refined, with the latest best estimate anticipated to be $14.3M (2008/09 dollars).

Costs have been built up in a systematic manner, albeit at a high level, and are based where possible on contract values.

Due to the shared nature of the scheme, costs have been apportioned between the three agencies on the following basis whereby Council will fund a total of $9.6M.

Table B6 Hawkesbury Villages PSP Stage 1 Capital Expenditure ($000 2008/09 real)

	Mooney & Cheero Collection System ($M)	Bridge Crossing ($M)	Shared infrastructure with SWC ($M)
Total Cost	$6.91	$1.0	$6.81
Council	$6.04	$0.22	$3.34
DADHC	$0.87	$0.22	$3.47

We found that a large proportion of the Council component (67%) of the scheme has been funded through a variety of grants and contributions. In summary, Council has received the following funding:

- State Government contribution of $3000/property ($0.75M)
- Contribution from County Towns Fund of 50% of capital cost ($4.0M) and
- Customer contributions of $10,000/property ($2.5M)

The remaining balance (circa $2.4M) will be funded by the wider community, through water rates.

At the time of review, we found that $7.9M had been spent to date, which equates to 55% of total spend. When compared to the actual progress, the current level of spend reflects good progress, although it should be noted that the more difficult aspects of the project (including the bridge crossing) have not yet been delivered.

Assessment of Prudence

In the delivery of this scheme, Council has shared both cost and responsibility for assets with both Sydney Water and DADHC. In combination with the utilisation of all available grants and contributions, this has reduced the financial burden on the wider Council customer base.

We also consider the procurement strategy adopted to be both appropriate and cost effective. In developing the preferred option, we found that Council has undertaken a Net Present Value analysis which accounted for whole life costs.

Based on the above, we consider the Hawkesbury PSP – Stage 1 to be both prudent and cost effective. Our only reservation relates to the fact Council does not appear to have accounted for initial investigation and project management costs. These have been absorbed within general Council overhead costs, and not shared with Sydney Water and DADHC as we would expect.

We queried the extent of these costs, and found that circa $100K in internal staff costs has been expended on the project. We were advised that these costs are captured on salary capitalisation sheets on a weekly basis and are capitalised periodically. Whilst, in the case of this project, the internal costs are relatively immaterial (with project management separately contracted), we consider that these costs, should be included within the capital program from the outset. Council are effectively understating the true cost of schemes allowed within the Determination, and overstating the level of operating expenditure required. Furthermore, in the case of a shared project, such as this, the current process makes it difficult for Council to recover a proportion of these internal project costs from the other project partners.

Project Title – *Terrigal to Kincumber Augmentation (S308)*

Brief Description of Project

Council proposes to augment the Terrigal to Kincumber STP coastal carrier and construct a new sewage carrier system for the catchment of Terrigal, North Avoca, Avoca Beach and Kincumber.

The proposed project will direct flow away from Avoca Lake, maximise the capacity of Terrigal SPS and allow for potential additional development within the Picketts Valley area.

Drivers for Investment

The primary driver for this investment is growth within the Terrigal catchment (and potential growth in other catchments). Increased flow in the catchment and subsequent upgrade of the Terrigal SPS where the pump capacity was increased has exposed the inadequacy of the North Avoca SPS, which as a result, experiences overflows during wet weather conditions.

In addition to this, Council cites the age and resultant deterioration of the carrier system (where there is some evidence of gas attack and valve failure) as another driver, to reduce the risk of failure.

Furthermore, the protection of the environmentally sensitive Avoca Lake (a SEPP14 wetland) is also seen as a key driver for investment.

Solution Development

In order to develop a viable solution to this complex problem, Council completed a detailed strategic options assessment, which identified the following strategies, each of which contained a number of options:

- Strategy A: Divert all Terrigal Flows Away from Avoca/Nth Avoca and use Lake crossings.
- Strategy B: Maximise Use of Existing Coastal Carrier and divert excess Terrigal flow.
- Strategy C: Retain Terrigal Catchments flows through Avoca – retain Lake crossings.
- Strategy D: Divert all Terrigal Flows Away from Avoca/Nth Avoca avoid Lake Crossings.
- Strategy E: Local Sewage Treatment & Recycling.
- Strategy F: Transfer to Bateau Bay Sewage Treatment Plant.
- Strategy G: Flow Storage Tanks.

Following this, Council developed multi-criteria, weighted, evaluation methodology to assess and compare each strategy, as follows:

- Economic Considerations (25% weighting)
- Technical Considerations (25% weighting)
- Environmental Impact (30% weighting)
- Community & Social Impact (20% weighting)

Implementation of the multi-criteria analysis, identified Strategy D to be the preferred approach, which is understandable given the perceived environmental benefit from avoiding the crossing of Lake Avoca.

In summary, the preferred option involves:

- Upgrade North Avoca SPS, to replace ageing equipment and allow for further growth.
- Direct flow from Lake Avoca and pump from North Avoca SPS to Terrigal PS.
- Micro tunnel from Terrigal PS to Kincumber SPS (circa 2km) – known as Golden Grove Tunnel.
- Construct a new rising main from Avoca A1 PS to link in with tunnel.
- Construct a duplicate main to Kincumber SPS.

Project Delivery

At the time of review, Council had commenced the concept design phase. During this process it is anticipated that:

- Further investigation and development of the preferred option will be undertaken.
- Environmental assessments will be completed and planning approvals obtained.
- Prepare concept designs.
- Prepare design and construct tender documents.
- Develop staging and procurement strategies.
- Prepare contingency plans for existing assets.

It is anticipated that this work will be completed during 2009. It is expected that the scheme will be procured in five separately tendered stages and delivered by 2013.

Cost Summary

Since the inception of this project, the overall high level cost estimate for the Terrigal to Kincumber Augmentation has escalated significantly.

We found that the initial feasibility estimate for delivery of the (as yet to be defined) scheme prepared in 2005 was $17.2M, which was nominally adjusted to $18M for the 2006 IPART Determination.

Following completion of the strategic option assessment process, the estimate was further reviewed and inflated to $32M.

As part of the concept design process, a peer review of costing information was undertaken which has further escalated the latest best estimate to $40.5M.

Given the complexity of this scheme, high level of uncertainly and significant variance to date, we are concerned that costs will continue to escalate, as the scheme definition improves.

Assessment of Prudence

Whilst there are multiple benefits to the delivery of this large scheme, including upgrades to a number of catchment areas we do not believe that the current level of performance of the existing coastal carrier, justifies the large capital intensive solution proposed.

The justification and scope of the scheme is founded on the need to divert flow from the existing twin 600mmØ pipeline crossing Lake Avoca. However, when challenged on the historic performance of this pipeline, Council confirmed that there had been no serviceability failures on this section of main. Given the relatively young age of the pipeline (reported to be less than 30 years old), we would expect the pipe to continue to perform as designed for a further 30 years at least. Evidence from the UK suggests that large diameter sewers have an asset design life in excess of 100 years.

We are aware that isolation valves on the twin 600mmØ pipes are in a poor state of repair, however replacement of these valves would enable the isolation of one of the pipes in the future and enable Council to undertake maintenance, should it be necessary.

We consider that the 'pinch point' within the coastal carrier is the North Avoca SPS. Upgrading this to a capacity that would cope with wet weather flow from Terrigal SPS would resolve the growth and maintenance issues that currently exist.

We acknowledge that Council has developed a robust evaluation methodology and undertaken a detailed analysis using multi criteria assessment, which represents good engineering practice. However, we believe the assessment criteria are skewed towards the potential environmental risk, when asset serviceability should be the primary driver.

For these reasons we do not believe the proposed solution to be prudent or justified. We believe a scaled down solution may be more appropriate for this Determination, involving the upgrade/renewal of the North Avoca PS and associated isolation valves. This would have the effect of reducing the current project estimate significantly.

The Council argues that in addition to the issues surrounding the Avoca/Terrigal catchment at Lake Avoca, augmentation works in other catchments are also proposed that are independent of the main component of the scheme.

Without undertaking a more detailed engineering assessment of the scheme (which was not possible given the time scales available), involving the unbundling of the individual scope and costs for each element of the scheme, we are unable to provide a firm estimate for the above mentioned, reduced scope scheme. Council suggests that a budget of $23M would enable it to complete a least cost option for Terrigal/Avoca and undertake identified work in the other catchments. While we have not reviewed this revised scope and as such are unable to confirm the prudence and cost effectiveness of this alternative option, we agree with this way forward.

We note that Council have responded to our position on this scheme by acknowledging that there has been a significant change to the scheme from the original base case and that they are proposing to undertake a reassessment of *all of the original options* in the foreseeable future. We support this approach in the consideration of our findings, which we hope with further analysis of the risks and costs involved will result in a change in scope that provides the greatest benefit at least cost. We suggest that as part of this analysis, a pipe condition assessment should be undertaken on the pipeline across Lake Avoca to more fully understand the likelihood of the consequence of pipe failure occurring. The seized valves should be replaced to give operational flexibility and reduce the risk of spills from the network or pumping station. We believe that this maintenance should technically be achievable given that there are two pipes crossing the lake to facilitate the necessary shutdown of the pipeline.

Project Title – *Terrigal CBD Urban Flood Mitigation CWP 368 (E7144.399)*

Background to Flooding and Drainage Asset & Risk Management

Council is responsible for managing its stormwater assets with respect to investigation, design, construction and maintenance of flood mitigation works. The risks associated with investment needs are undertaken on a catchment basis. Risk Management of flooding risks is governed by the EP&A Act and controlled by the Floodplain Risk Management Planning framework, which feeds into the Local Environment Plans (LEPs), as consistent with the regional planning strategies and SEPPs.

The recently released [2005] Floodplain Development Manual (FDM) has provided Council with an improved methodology for assessing flooding risk in priority catchments. By investing in flooding studies prior to the introduction of the FDM in 2005, Council has increased its success rate in receiving funding for lesser priority catchments/overland flooding other than the mainstream flood related studies and works identified following the severe storms that hit the region in the late 1980's and early 1990's eg. Terrigal Flood Mitigation study.

Council has over 23 major catchment areas to manage, of which only the most severely affected have been investigated, comprising one quarter of all the catchments. Past studies that have not progressed for funding approval have been reviewed and ranked by highest priority according to the criteria provided by the Flood Management Authority (FMA) – see below for further details.

Funding for stormwater investment often comes from State and Federal Government grants administered by the Flood Management Authority (FMA), which is an organisation consisting of member Councils and Government representatives who oversee and advise on the provision of grant funding to various Councils. The committee of the FMA advises the member Councils which catchments are suitable for investigation and the commitment of funds to invest in solutions to resolve flooding problems (once the results from studies become available and potential solutions and their likely costs / cost per property etc. are known).

Council has a substantial backlog of projects related to levels of service problems, often due to subsequent development in the catchment, or improved environmental/other standards catching up with systems built with less stringent design standards. Such projects are often funded through the route of obtaining grants, with some contribution from Council from water and wastewater bills (funded from the annual levy).

The Flood Risk Management process must be followed by Council when addressing major flooding problems. A Floodplain and Risk Management Committee (FRMC) is required to be formed and oversee the progress of studies and implementation works. The committee is comprised of members from the community including Councillors, Council staff, the local community, SES, DECC, CMA and Gosford City Council in particular has had such a committee in operation for over 18 years. Flood studies require flood and asset data collection which is essential for defining the nature and extent of flooding and its impact on the natural and built-up environment. A Floodplain Risk Management Plan (FRMP) can then be produced following data analysis in order to determine the flood mitigation options considering social, ecological and economic factors relating to flood risk. The preferred solution options are detailed in the FRMP which undergoes public consultation and is subsequently modified as appropriate. The implementation of the FRMP may involve flood mitigation works, planning controls, flood warnings, flood readiness measures and response plans, environmental rehabilitation, or ongoing data collection and monitoring.

The identified works are placed by Council in its Forward Plan of [Flood Mitigation] works. Industry rates at the time of review are used to cost the schemes that are designed to reduce the loss of property and life from flooding up to the 1 in 100 year flood event recurrence interval.

Initially no detailed planning is undertaken and a Strategy concept forms the basis of the scheme determined by assumed pipe sizes according to indicative gradients. Usually by October/November each year funding approval is given and successful projects move into the detailed design stage, where schemes are assessed starting at the lower part of the catchment and working back to the upper reaches in logical stages/phases for works implementation.

The Forward Plan of works ranks the projects, which may be sub-projects within an overall scheme by catchment, using similar criteria according to the methodology used by the FMA which administers the grants funding for flood mitigation. The total risk score for ranking purposes is based on a combination of the FMA guidelines (categories 1 to6) and Council's more integrated approach to flood/drainage management (categories 7 to 10) and is made up of the following categories and associated attributes:

- Hazard level in area -5 attributes with max score of 1 each.
- Social Impact -5 attributes with max score of 1 each.
- No. of dwellings affected -5 attributes ascending scores from 1 to 5.
- % of dwellings affected -5 attributes descending scores from 5 to 1.
- Frequency of overfloor flooding -5 attributes ascending scores from 1 to 5.

- Evacuation -5 attributes with max score of 1 each.
- Damage - 4 attributes with max score of 1 each.
- Environmental damage - 3 attributes with max score of 1 each.
- Maintenance issues - 2 attributes with max score of 1 each.
- Development - 6 attributes with max score of 1 each.

The resulting Forward Plan of flood mitigation works provides Council with its four year Capital Works Program (CWP) which is reviewed and revised annually. The review is conducted on the assumption that the Drainage Levy will continue to be funded and that Council will continue to receive Government assistance from grants funding through the FMA. Where projects are considered to be extensive (> $0.5M), they are staged over a number of years to allow other similar ranked projects to proceed. This ensures that the highest risk areas are addressed sooner. Such an approach also affords time to prepare designs, arrange land acquisitions and plan the implementation of works to minimise the disruption to the community. At any one time, six to ten projects are usually running concurrently year to year within the CWP.

Cost estimates are used to indicate the level of works required within the Flooding and Drainage CWP, but the exact extent of these works for each project is not certain when the program is developed. Where additional funds are required for certain projects over their original estimated cost, then a Budget Review is performed to address funding requirements and to ensure that the 'books are balanced'. Some projects may come under budget and funds can be redirected to those projects that cost more than originally expected. Otherwise, schemes will take longer to complete (ie. deferred) where funding is not available. The CWP for Flooding and Drainage program is volatile in nature and often changes with respect to the particular strategies adopted, the grants received from the FMA, project readiness and annual budget constraints.

Following flood mitigation works implementation, the asset data is collected and uploaded onto the Asset Management System that is currently under development, for which many flooding and drainage assets are not yet recorded.

Brief Description of Project

Following the results of the "Terrigal Trunk Drainage Study, Management Study and Management Plan" in August 1995, Council required significant funding in order to progress the implementation of the stormwater flood mitigation works required particularly within the CBD of the Terrigal town centre.

Drivers for Investment

Council informed us that the main driver for this scheme was related to surface water flooding within the catchment, mainly located within Terrigal CBD. Street drainage is a major problem in Terrigal CBD, related to the grade of the road and the associated kerb and guttering. As the street is utilised as part of the trunk drainage system under the road, funding can be approved through the FMA (assuming that kerb and guttering construction works is funded through the roads funding stream). See solution development section for more details on the scope of the works required.

Solution Development

The study identified thirteen (13) different areas within the Terrigal CBD catchment that required flooding risk management. Up to three management options and their associated 'effect of works' were identified for each of the thirteen (13) areas. Given the significance and scope of the project, the Council ensured that any existing drains at risk of collapse were incorporated into the project.

Costs were identified and the Flood Management Plan was developed. These locations and one general need relating to silt traps at one particular location were identified and the costs attributed according to the management options available. In most cases the least cost or second least cost option was chosen, otherwise the cost was the same as for the management option costs. In a few cases the most expensive option was chosen or the cost had increased, but this was offset in the main by one area for which between $300K and $610K (nominal $) was saved through not implementing one of the three recommended management options.

Council typically funds its stormwater schemes through a combination of grant funding and its stormwater charge. Only projects that receive grant funding are likely to proceed, as the stormwater charge does not fully fund the stormwater program. To date, Council has received a number of grants to fund the Terrigal CBD Urban Flood Mitigation scheme, although completion of the project across all thirteen (13) areas is subject to Council securing additional grant funding. However, we acknowledge on advice from Council that this scheme is more likely to be funded over schemes that have since been proposed because the grant funding approval process prioritises schemes that have previously been funded over schemes seeking approval again or assistance for the first time.

Project Delivery

The works are completed usually through a combination of in-house construction (minor works) and tendered construction contracts for the larger sub-project phases and sometimes using schedules of rates contracts (plus materials) for the smaller works eg. Kurrawyba Avenue – Stage 1 (Table B7). Council provided some project delivery and cost information on some of the works completed as follows:

Table B7 Terrigal CBD Urban Flood Mitigation CWP Scheme

Project stage	Completed Date	Tender price ($000's 2008/09)	Out-turn cost	Variations % of cost
Terrigal Bowl Upgrade – Stage 1	April 2004	1,383	1,400	0.48%
Terrigal Bowl Upgrade – Stages 2-4	Planned for October 2004	1,312	Not provided	-
Church Street Terrigal Trunk Drainage	December 2005	1,323	Only one invoice provided	-
Kurrawyba Avenue Terrigal Drainage – Stage 1	Planned for July 2007	322	Not provided	-
Sub-Total	4,340			

There are more stages to come in the project which have been prioritised in relation to the original study but in accordance with the FMA criteria and methodology for funding approval.

Cost Summary

As the costs identified in the Project delivery section have shown, Council has to date completed four (4) of the (13) scheme areas. Expenditure on these four (4) schemes has exceeded the original estimate for total project (i.e. the thirteen schemes). The combined cost of the four (4) areas is $4.34M (expenditure from 2003/04 to 2006/07), which compares to an original budget for all thirteen areas of circa $2.418M (1995 price base). Separate grants are being sought for each of the remaining nine (9) areas of the original thirteen (13) and these packages of work will be tendered for separately.

As Council relies on grants to fund the majority of its stormwater capital works. the remainder of the project will not be viable unless grants funding is approved.

Otherwise, we suggest that delivery will have to be spread over a very long period of time (decades) if storm water charges were to be solely relied upon. This is evidenced by the fact that despite the need being identified in the 90's, implementation of a solution was not commenced until the mid-2000's and will not be completed for many years from now.

Although confident in the management teams prioritisation process for flooding/drainage capital, we note the significant difference between the budgets reported to IPART and the outturn costs for implementing solutions.

Assessment of Prudence

Council has taken a proactive approach to seeking grants to fund its stormwater capital program. Since 2005, it has been successful in obtaining grant funding to commence its backlog of outstanding flooding and drainage mitigation works (estimated at $170M).

Terrigal CBD Urban Flood Mitigation complies with the criteria for funding approval through the Flood Management Authority (FMA) governance framework and approval process. Council indicated that this project was one of the first in NSW to obtain funding approval from the FMA to address an urban drainage problem that was not just related to flooding impacts on local creeks/rivers. This is not an insignificant achievement in the context of competition for grants funding from 26 Councils within the Hunter region.

On this basis we feel that the project is prudent as it complies with the flood risk assessment criteria in the Flood Development Manual. However, we are concerned that the viability of the project hinges on obtaining funding approvals for the remaining sub-project phases to be implemented in future.

If funding approval is not forthcoming (due to budget cuts or a change in strategy by the FMA), the levels of service for customers may deteriorate further as current allocations from stormwater charges do not cover the implementation of this scheme. Moreover, the final cost of the project is unknown. This is because tenders are only sought when a grant has been approved. Separate grants are being sought for each of the remaining nine (9) areas of the original thirteen (13) and these packages of work will be tendered for separately. As such we are unable too assess the efficiency of this project until all areas have been completed, but we do consider it to be justified. We note also that implementation of works that have been completed thus far have been within an acceptable margin of the original cost tendered.

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