SEQ Water and Wastewater Price Monitoring 2012-13 Unitywater

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Assessment of Operating and Capital Expenditure – Review Report

Queensland Competition Authority

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Halcrow

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Queensland Competition Authority

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Abbreviations

Acronym	Description
DN	Nominal diameter (typically of pipeline) in millimetres
EP	Equivalent Persons (used to quantify treatment plant capacity)
FTE	Full Time Equivalent (staff numbers)
MBRC	Moreton Bay Regional Council
PM	Project Manager or Project Management (to suit context)
QCA	Queensland Competition Authority
QUU	Queensland Urban Utilities
RM	Rising Main
SCRC	Sunshine Coast Regional Council
SLA	Service Level Agreement
SPS	Sewage Pumping Station
STP	Sewage Treatment Plant
WRP	Water Reclamation Plant
WWTP	Wastewater Treatment Plant

Executive Summary

Introduction

Halcrow has been commissioned by the Queensland Competition Authority (QCA or the Authority) to provide independent expert advice in support of its Interim Price Monitoring review of the monopoly distribution and retail water and wastewater activities of Queensland Urban Utilities and Unitywater (the entities). In particular, Halcrow has been engaged to undertake an independent assessment of capital and operating expenditure incurred by the each of the two entities; this report documents the assessment of operating and capital expenditure undertaken in respect of Unitywater.

Scope of Review

Halcrow has been engaged to undertake assessments and provide independent expert advice in support of price monitoring by the undertaken by the QCA in respect of monopoly distribution and retail water and wastewater activities of Unitywater. In particular, advice is provided in respect of the following:

- assessment of capital expenditure, specifically:
  - the prudence and efficiency of capital expenditure against relevant service standards and demand forecasts;
  - progress against the issues identified for future reviews; and
  - the allocation of costs between services;
- assessment of operating expenditure, specifically:
  - the prudence and efficiency of operating expenditure against relevant service standards and demand forecasts;
  - progress against the issues identified for future reviews; and
  - the allocation of costs between services.

Management Systems and Processes

Halcrow has found that, whilst still in development, Unitywater's management systems and approach are generally consistent with other water industry distributor-retailer organisations. Full development and implementation of its Asset Management System, including the capture of relevant asset data, is required to provide an appropriate management platform for effective planning.

Halcrow is of the view that, once fully implemented, Unitywater's management systems will provide the necessary rigour to ensure prudence and efficiency in respect of its expenditure/investment proposals.

Review of Operating Expenditure

Unitywater's regulated operating expenditure (excluding bulk water) is forecast to increase marginally (+1.7 percent) in nominal terms in 2012/13. This is less than the forecast rate of inflation (2.5 percent), and represents a reduction of 0.8 percent in real terms.

In spite of this achievement, Halcrow is of the view that there is scope for further efficiencies to be achieved. Areas of concern include:

- The rate adopted by Unitywater for the escalation of its 'business-as-usual' expenditure.
- Whilst Unitywater has taken major initiatives (including redundancies) to reform its workforce practices and reduce employee expenses, it may not have fully accounted for the benefits to be derived from these initiatives.
- An effective increase of 13.9 percent in electricity use far outweighs the forecast increase in either water demand (as indicated by forecast bulk water purchases) or the number of properties to which wastewater services are to be provided.
- Unitywater's corporate costs, as a proportion of total operating expenditure, are considered excessive when compared to benchmarks for similar government owned organisations.
- The increase (+16.4 percent) in Other Material and Services expenses, over and above the reallocation of expenditure previously reported as Contractor expenses, is substantially in excess of what is expected on the basis of escalation and the growth in services.
- Industry level benchmarking indicates that, whilst Unitywater's unit costs of service provision compare favourably with those forecast by Queensland Urban Utilities, they are higher (at an aggregate level) than those incurred by assessed interstate comparators.

On the basis of its observations and analysis, Halcrow recommends a number of adjustments to reflect identified inefficiencies in respect of Employee expenses ($1.28 million), Electricity expenses ($0.72 million), Corporate expenses ($2.50 million) and Other Materials and Services expenses ($2.20 million). In total, Halcrow proposes that a reduction of some $6.70 million in Unitywater's forecast of $143.58 million (excluding bulk water costs) is required to reflect an efficient level of regulated operating expenditure for 2012/13. This represents a downwards adjustment in the order of 4.7 percent.

Review of Capital Expenditure

On the basis of the detailed review of sample projects, capital expenditure was generally found to be prudent. Whilst allowances for direct (or base) expenditure were generally found to be efficient, Halcrow found some difficulty in correlating the project cost estimates and adopted variations with the forecasts presented in Unitywater's Interim Price Monitoring Submission and supporting information; in some cases the justification for cost movements was not fully apparent.

More specific observations arising from the review are as follows:

- Based on the sample of schemes reviewed, Halcrow considers that Unitywater is delivering a well justified and broadly efficient capital program. Unitywater has adopted a sensible approach to delivery, whereby the preferred solution often involves phased delivery to ensure additional capacity is provided on an as required basis.
- There was demonstrated evidence of the implementation of Unitywater's capital planning processes, including gateway approval. There was also evidence that approvals of budget variations are generally sought at an early stage.
- It is apparent that Unitywater considers a range of options, including the 'do nothing' option, in its initial project planning.
- There was evidence to confirm that Unitywater has considered a number of novel procurement options (eg. combining projects under one contract and utilising early contractor involvement), which has delivered quantifiable efficiencies to the business. However, there were also a number of instances where multiple contracts were procured in order to deliver a single output. Halcrow considers that this resulted in additional cost to the project due to duplication of activities and recommends that more efficient procurement options are considered for all projects.
- There appears to be a number of legacy projects that have carried over from the Regional Council organisations that preceded Unitywater. Whilst the need for these projects is apparent, significant levels of project planning and re-design has been necessary to ensure a more prudent scope of work is delivered. Whilst this has resulted in additional planning and design costs, over and above what Halcrow would normally expect, it has ensured projects have not been conservatively over-scoped.
- There were a number of instances where an allowance for risk was built into the approved contract budget, and separately allowed for within project contingency. Whilst the allowance may have been moved within the overall budget, there is a risk of potential duplication of costs. Separation of project support costs and other allowances from the agreed contract value may provide better transparency of project costs.
- Halcrow found, specifically in respect of projects related to the development of new business support systems, that the justification of project cost movements was not clearly articulated. Whilst the reasoning presented supported additional expenditure in principle, the detailed scope and costing that supported the change was not readily apparent to Halcrow.
- In the case of the 'System Enhancements and Improvements' project, progress should be monitored to ensure each initiative delivers a positive return on investment. With programs of disparate and as yet undefined initiatives, there is a risk that unjustified projects are hidden within the larger program of work, and delivered despite not being of benefit to the business.

- Ongoing monitoring is also recommended in respect of other 'business system' related projects (eg. the Consolidated Asset Management and GIS Implementation projects) to ensure that assumed benefits are actually realised as the projects are fully implemented.

In summary, Halcrow considers that Unitywater has generally adopted a sensible approach to project development, which (in most cases) is based on the business' adopted guidelines. Whilst expenditure was, for the most part deemed efficient, increases in forecast expenditure have not been fully justified in some cases.

On the basis of the detailed review undertaken in respect of the nine (9) identified projects, Halcrow has recommended that the allowed expenditure in respect of five (5) projects be reduced. It has further recommended that the allowed expenditure in respect of the remaining four (4) projects be increased and/or re-profiled to reflect the latest project cost estimates.

Total proposed adjustments amount to a reduction of $4.51 million (5.8 percent of the value of the sampled projects) over the five (5) year period. The adjustment in 2012/13 amounts to an increase of $0.39 million (1.4 percent of the value of the sampled projects).

Given the basis of the adjustments, Halcrow does not consider it valid to extrapolate these adjustments across the remainder of the capital program.

1 Introduction

1.1 Overview

Halcrow has been commissioned by the Queensland Competition Authority (QCA or the Authority) to provide independent expert advice in support of its Interim Price Monitoring review of the monopoly distribution and retail water and wastewater activities of Queensland Urban Utilities and Unitywater (the entities). In particular, Halcrow has been engaged to undertake an independent assessment of capital and operating expenditure incurred by the each of the two entities.

This report documents the assessment of operating and capital expenditure undertaken in respect of Unitywater.

1.2 Background

The Treasurer/Minister for State Development and the Minister for Finance/Minister for The Arts have referred the monopoly distribution and retail water and wastewater activities of Queensland Urban Utilities and Unitywater to the Authority for price monitoring from 1 July 2011 to 30 June 2013. Halcrow understands that the Gold Coast, Logan and Redland City Councils (previously serviced by Allconnex Water) are not included in this price monitoring review.

Under the referral, the Authority must:

- provide timely and transparent information to customers about the costs and other factors underlying the annual increase in water and wastewater prices, including distinguishing the bulk and distribution/retail components;
- monitor the revenues of each activity over the regulatory period, based on the total costs of carrying on the activity; and
- provide a Draft Report for 2012-13 by 31 January 2013 and a Final Report by 31 March 2013.

This is the third year of price monitoring of the entities and the final year of the interim price monitoring period. The Authority's previous reports have supported a number of initiatives for implementation in respect of the entities' future expenditure, including the adopted approach for preparation and reporting of cost estimates and the associated governance processes.

1.3 Scope of Review

As previously noted, Halcrow has been engaged to undertake assessments and provide independent expert advice in support of price monitoring by the undertaken by the QCA in respect of monopoly distribution and retail water and wastewater activities of Unitywater. In particular, advice is provided in respect of the following:

- assessment of capital expenditure, specifically:
  - the prudence and efficiency of capital expenditure against relevant service standards and demand forecasts;
  - progress against the issues identified for future reviews; and
  - the allocation of costs between services;
- assessment of operating expenditure, specifically:
  - the prudence and efficiency of operating expenditure against relevant service standards and demand forecasts;
  - progress against the issues identified for future reviews; and
  - the allocation of costs between services.

Halcrow notes that the QCA has awarded a separate consultancy to undertake an assessment of entities' projected demand. The findings of this review of operating and capital expenditure (expenditure review) will be, in part, dependent upon the outcomes of that review.

Detailed requirements in respect of the scope of each of the two reviews are outlined in the respective Terms of Reference.[1,2]

1.4 Structure of Report

This report discusses and presents Halcrow's key findings and recommendations arising from the assessment of operating and capital expenditure to be incurred by Unitywater. Specifically:

- **Section 1** provides background in respect of Unitywater, the QCA and the scope of this review.
- **Section 2** provides a brief overview of the information provided by Unitywater for the purposes of this review.
- **Section 3** provides an overview of the approach adopted by Halcrow in reviewing the efficiency of operating expenditure and the prudence and efficiency of capital expenditure.
- **Section 4** outlines Halcrow's review of Unitywater's management processes, and more specifically, its approach to planning and asset management.
- **Section 5** outlines Halcrow's assessment of the operating expenditure incurred/forecast by Unitywater.
- **Section 6** outlines Halcrow's assessment of capital expenditure incurred/forecast by Unitywater.
- **Section 7** summarises the findings of Halcrow's assessment and presents the conclusions drawn from the review. Recommendations in respect of the prudence and efficiency are also presented.

[1] QCA, *Terms of Reference; SEQ Interim Price Monitoring; Assessment of Operating and Capital Costs*, dated 22 August 2012.

[2] QCA, *Terms of Reference; SEQ Interim Price Monitoring; Assessment of Projected Demand*, dated 22 August 2012

1.5 Report Limitations

This report has been prepared for the Queensland Competition Authority, by Halcrow, for the sole purpose of providing an assessment as to the prudence and efficiency of forecast operating and capital expenditure to be incurred by Unitywater over the price monitoring period and specifically for 2012/13. This report cannot be relied upon by any other party or for any other purpose.

Halcrow's assessment has been undertaken on the basis of information and material provided by Unitywater, from meetings and discussions held with Unitywater representatives, and on information provided by Unitywater subsequent to those discussions.

Importantly, Halcrow has not undertaken any independent verification of the reliability, accuracy or completeness of the source data and information provided. Therefore, it should not be construed that Halcrow has carried out any form of audit or other verification of the adequacy, completeness, or accuracy of the specific information provided by Unitywater.

2 Unitywater Submission and Supporting Information

2.1 Information Provided

Unitywater's submission in respect of the Interim Price Monitoring for 2012/13 comprises the following documentation:

- Interim Price Monitoring Submission 2012/13;[3] and
- Interim Price Monitoring Submission 2012/13 – Data Template.[4]

Other supporting information that has been provided for the purposes of conducting this review has included:

- Detailed information in support of proposed operating expenditure;
- Project business cases; and
- Additional information and clarifications in response to specific questions raised by Halcrow.

2.2 Adequacy of Information

2.2.1 General

The adequacy of information provided by Unitywater, for the purposes of this review, in respect of both operating expenditure and capital expenditure is discussed separately in the following sections.

2.2.2 Operating Expenditure related information

Unitywater generally complied with the QCA's requirements in completing the Operating Expenditure Data Template. This in itself has created some difficulties as, for example, the inclusion of employee costs in Corporate Expenditure implies that there is no aggregate reporting of employee costs for the organisation.

Unitywater's 2012/13 written Submission appears to have been a reproduction of its 2011/12 Submission and much of the information in respect of operating expenditure was not updated for 2012/13. In some cases this applies to the text of the Submission while in other cases column headings in tables were changed for the different years but the data in the columns was not updated.

Unitywater was requested to address this issue, but because of resource constraints was unable to comply. This created difficulties in matching explanations with variances.

[3] Unitywater, *Interim Price Monitoring Submission – 2012-13; Submitted to Queensland Competition Authority*, 31 August 2012.

[4] Unitywater, *SEQ Interim Revenue Monitoring; Information Requirement Template 2012/13* (populated MSExcel Spreadsheet), 31 August 2012.

Unitywater's Submission does not adequately address the reasons for deviations from its 2011/12 Submission to its 2012/13 Submission, or the variations between the projected outcomes for 2011/12 and its forecasts for 2012/13. This is reflected in the number of queries Halcrow was required to submit post receipt of the Submission and Data Template.

Neither QCA's Data Template nor Unitywater's submission captures the information required for effective benchmarking of Unitywater with other utilities. It would assist if QCA were to define the metrics it requires for benchmarking and included the reporting of these in its template. This would enable a consistent time series to be established for each organisation as well as ensuring that common definitions are adopted across the utilities it monitors.

Despite these comments, Unitywater was cooperative in responding to Halcrow's queries and provided much information in support of its expenditure proposals, although there were often long time delays in responding.

2.2.3 Information in support of Capital Expenditure

Unitywater provided extensive, well presented, supporting information to enable assessment of the prudence and efficiency of the selected sample of capital projects. It is clear that Unitywater is undertaking its capital planning and delivery activities in accordance with documented processes.

In some cases Halcrow had some difficulty in understanding itemised costs associated with capital expenditure and difficulty understanding how this translated to as-constructed costs. Future assessments could be streamlined by ensuring that all major expenditure line items are consistently included in planning documentation, approvals documentation and any project reports. It is helpful when major line item descriptions match; this ensures that the capital approvals process remains transparent and any variation from planned expenditure can be appropriately tracked. Cost/timing/risk learnings can be more effectively understood by both Unitywater and the QCA (or its advisors) and incorporated into other projects. This approach will also ensure that contingency and variation budgets can be appropriately understood.

Notwithstanding that some projects were legacy projects initiated by the constituent Councils, these have been integrated into Unitywater's adopted capital planning approach. This has, in some cases, resulted in greater rigour in defining and justifying the proposed expenditure.

3 Review Methodology

3.1 Overview

The review of Unitywater's operating and capital expenditure has comprised a number of elements including:

- A desktop review of information provided by Unitywater in its Interim Price Monitoring Submission and associated Data Template.
- Preparation of a Request for Information that identified key supporting information required to effectively undertake the review. This was submitted to the Unitywater on 27 September 2012.
- Meetings with Unitywater representatives at the entity's Caboolture offices to obtain more detailed information in relation to its historical and forecast expenditure; meetings were held on 4th and 5th October 2011.
- A desktop review of information provided by Unitywater in support of its Submission, both during and subsequent to the meetings with its representatives. Additional requests for information were made by Halcrow on the basis of information provided.
- The detailed review of key elements of operating expenditure to assess the efficiency of such expenditure.
- The detailed review of key elements of capital expenditure to assess the prudence and efficiency of such expenditure.
- Synthesis of data obtained from the above evaluation to draw conclusions in respect of the efficiency and prudence of the expenditure.
- Preparation of this report to document the findings of the review.

The review has also been informed by the learning Halcrow gained by reviewing the findings presented in the Authority's previous Interim Price Monitoring Reports.[5,6]

The following sections outline the basis upon which the prudence and efficiency of expenditure has been assessed.

3.2 Assessment of Prudence

The assessment of whether Unitywater's capital expenditure is *prudent* has been split into a number of key tasks.

For the purposes of this review, the Authority has defined prudence as follows:[7]

[5] QCA, *Final Report; SEQ Interim Price Monitoring; Part A - Overview*, March 2011; and
QCA, *Final Report; SEQ Interim Price Monitoring for 2010/11; Part B - Detailed Assessment*, March 2011.
[6] QCA, *Final Report; SEQ Interim Price Monitoring for 2011-12; Part A - Overview*, March 2012; and
QCA, *Final Report; SEQ Interim Price Monitoring for 2011-12; Part B - Detailed Assessment*, March 2012.
[7] QCA, *Terms of Reference; SEQ Interim Price Monitoring; Assessment of Operating and Capital Costs*, dated 22 August 2012, page 3.

"*Expenditure is prudent if it is required as a result of a legal obligation, new growth, renewal of existing infrastructure, or it achieves an increase in the reliability or the quality of supply that is explicitly endorsed or desired by customers, external agencies or participating councils*"

The first key task has involved the review and assessment of whether Unitywater has in place an effective and robust planning framework. Effective and robust planning frameworks provide the context and strategic direction for capital and operational planning, and enable an organisation to demonstrate that its investment decisions have been prudent and appropriately targeted.

An effective planning framework typically includes the following key elements:

- provides detail on how an organisation aims to achieve its strategic, legislative or regulatory objectives and manage its key risks (ie. transparent and robust principles that ensure alignment between strategic objectives and investment priorities);
- identifies drivers for investment, including trigger points;
- defines the process, principles and accountabilities for developing the capital and operating plans, and provides transparent and robust principles to ensure alignment between strategic objectives and investment priorities, incorporating customer and stakeholder requirements;
- provides a reasoned method of allocating expenditure and prioritising programs/projects, thereby optimising the selection and delivery of the capital and operating expenditure programs;
- incorporates approval processes and allows for sufficient monitoring and reporting against budget/implementation plans; and
- reflects operating environment and service requirements.

Halcrow's review of Unitywater's planning framework has been aimed at assessing whether the above key elements can be identified.

The second key task in the assessment of prudence has involved testing whether Unitywater has been able to demonstrate the rigour with which the framework is applied throughout the organisation. This has involved a more detailed review of actual and proposed capital expenditure, including renewal programs.

The prudence test has considered the following:

- the basis (driver) for the investment;
- the outputs (and benefits) associated with each project or expenditure program;
- the methods by which projects and initiatives were identified and developed including the application of any risk based processes used to prioritise projects or initiatives; and
- the planning and design processes used to develop projects, and evidence of options considered and design development.

3.3 Assessment of Efficiency

In undertaking the review of efficiency, Halcrow has sought to determine whether the costs presented in Unitywater's Interim Price Monitoring Submission (and associated Data Template) reflect those that would normally be expected to occur in a competitive environment.

For the purposes of this review, the Authority has defined efficiency as follows:[8]

"*Expenditure is efficient (cost-effective) if:*

- *the scope of the works (which reflects the general characteristics of the capital item) is the best means of achieving the desired outcomes after having regard to the options available, including more cost-effective regional solutions having regard to a regional (whole of entity) perspective, the substitution possibilities between capital and operational expenditure and non-network alternatives such as demand management;*
- *the standard of the works conforms with technical, design and construction requirements in legislation, industry and other standards, codes and manuals. Compatibility with existing and adjacent infrastructure is relevant as is consideration of modern engineering equivalents and technologies. Compliance with Strategic Asset Management Plans, Total Management Plans and Netserv Plans are likely to be highly relevant; and*
- *the cost of the defined scope and standard of works is consistent with conditions prevailing in the markets for engineering, equipment supply and construction. The consultant must substantiate its view with reference to relevant interstate and international benchmarks and information sources. For example, the source of comparable unit costs and indexes must be given and the efficiency of costs justified. The consultant should identify the reasons for any costs higher than normal commercial levels.*"

In undertaking the assessment of expenditure efficiency, Halcrow has sought to determine the following:

- the current stage of the design development (as this will provide an indication of the likely accuracy of any cost estimates);
- the cost estimation methodology, including the estimating process, key cost components, assumptions and unit rates; and
- assumptions surrounding the application of contingencies and escalation factors.

3.4 Cost Escalation

Throughout this report, all expenditure has been reported in $nominal unless otherwise stated. Whilst specific escalation factors adopted by Unitywater in developing its operating expenditure forecasts are discussed in **Section 5.2.6.3**, it is appropriate to provide an indication of the background escalation so as to enable some understanding of the real movement in costs at an aggregate level. Accordingly, indicative escalation factors and associated multipliers to facilitate conversion to $real 2012/13 are presented in **Table 3.1**.

[8] QCA, *Terms of Reference; SEQ Interim Price Monitoring; Assessment of Operating and Capital Costs*, dated 22 August 2012, page 3.

Table 3.1: Escalation Factors used in this Report

Escalation from	Escalation Factor	Multiplier
$2007/08 to $2008/09	2.02%	1.1033
$2008/09 to $2009/10	3.20%	1.0815
$2009/10 to $2010/11	3.84%	1.0479
$2010/11 to $2011/12	0.92%	1.0092
$2011/12 to $2012/13	2.50%	1.0000
$2012/13 to $2013/14	2.50%	0.9756
$2013/14 to $2014/15	2.50%	0.9518

Escalation factors for past years are nominated on the basis of Consumer Price Index (CPI) figures available from the Australian Bureau of Statistics.[9] An indicative factor of 2.5 percent per annum is nominated for forecast years.

[9] Adopted rates based on Australian Bureau of Statistics, *Catalogue 6401.0 - Consumer Price Index, Australia, Jun 2012*, All Groups CPI – Brisbane, June figures.

4 Management Systems and Processes

4.1 Overview

Unitywater was created as a result of the Queensland Government's structural reform of the South East Queensland water sector. It was one of three (3) distributor-retailer entities[10] created in 2010 (under the provisions of the *South-East Queensland Water (Distribution and Retail Structuring) Act, 2009*) to service the growing population of South East Queensland region. It has responsibility for delivering drinking water, recycled water and sewerage services to the cities and townships within the boundaries of the Moreton Bay and Sunshine Coast Regional Councils.

Given that these structural changes have only recently occurred, Unitywater operates in a changing environment. A focus of its current activities is the completion of its transition to a new business regime as it separates from its two constituent councils (Moreton Bay and Sunshine Coast). These transitional arrangements have principally involved the integration of the water businesses of the constituent councils (which had themselves only been formed as a result of council amalgamations that occurred in 2008) and the implementation of new business systems.

This section provides an overview of Unitywater's operating environment and its management systems and business planning frameworks in order to provide an understanding of the basis upon which its expenditure proposal for 2012/13 has been developed.

4.2 Operating Environment

4.2.1 South East Queensland Water Grid

Unitywater operates as part of the South East Queensland Water Grid, an operating environment that has been developed through structural reform of the South East Queensland water sector.

This new regime comprises state-owned bulk water entities and council owned distributor-retailers. The relationship between each of the participants, together with their primary responsibilities, is shown in **Figure 4.1**.

Halcrow notes that the Queensland Government has announced that the three (3) bulk water entities will be merged into a single body from 1 January 2013.[11]

[10] Three (3) distributor-retailer entities were originally created. Queensland Urban Utilities and Unitywater continue to operate, however, the water and wastewater service responsibilities of Allconnex Water have subsequently been disaggregated back to its constituent Councils.

[11] Refer http://statements.qld.gov.au/statement/id/80032 and Queensland Government, *South East Queensland Water (Restructuring) Amendment Regulation (No. 1) 2012.*

Figure 4.1: Relationship of South East Queensland Water Grid[12]

4.2.2 Area and Scope of Operations

Unitywater provides water supply and sewerage services to an estimated resident population of 748,770 with 278,474 water supply connections and 253,275 sewer connections across the 5,223 square kilometre region occupied by the Moreton Bay and Sunshine Coast Regional Councils.[13] The area serviced is shown in **Figure 4.2**.

Unitywater's water infrastructure assets include:[14]

- 18 sewage treatment plants (STP's);
- 2 advanced water treatment plants (AWTP's);
- 108 drinking water reservoirs and 8 recycled water reservoirs;
- 5,542 kilometres of trunk and water reticulation mains pipeline;
- 5,352 kilometres of sewerage mains pipeline;
- 777 sewage pump stations and 79 water pumping stations; and
- 79 kilometres of recycled water network.

[12] Source: Queensland Urban Utilities, *QCA Interim Price Monitoring: Information Return 2012/13*, 31 August 2012, page ii.

[13] Unitywater, *Interim Price Monitoring Submission – 2012-13; Submitted to Queensland Competition Authority*, 31 August 2012, page 9.

[14] Ibid.

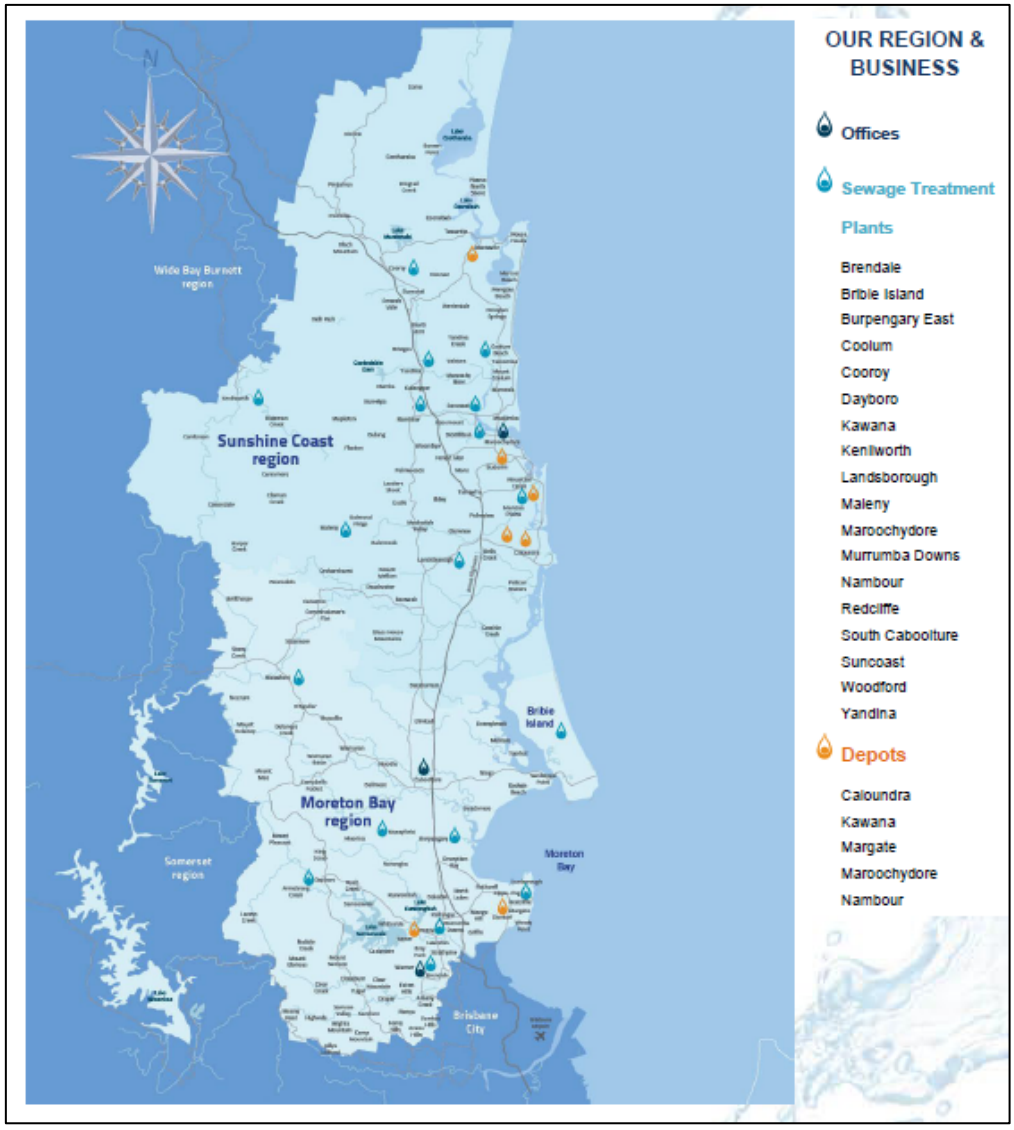

Figure 4.2: Unitywater Area of Operations[15]

4.2.3 Governance

Unitywater is jointly and wholly owned by the Moreton Bay and Sunshine Coast Regional Councils. The three parties (Participants), ie. Unitywater (formally Northern SEQ Distributer-Retailer Authority), Sunshine Coast Regional Council and Moreton Bay Regional Council, have entered into a *Participant Agreement*[16] that outlines their relationship and respective obligations; a Statement of Obligations is incorporated (as Schedule 1) into the Agreement.

[15] Source: Unitywater, *Interim Price Monitoring Submission – 2012-13; Submitted to Queensland Competition Authority*, 31 August 2012, page 12.

[16] *Northern SEQ Distributer-Retailer Authority Participation Agreement* between Northern SEQ Distributer-Retailer Authority, Sunshine Coast Regional Council and Moreton Bay Regional Council, 25 June 2010.

Under the provisions of the *Participation Agreement*, Unitywater is to be governed by a Board consisting of five Members, who are responsible for ensuring the proper and efficient management of the organisation. Board Members are appointed by agreement of the parties, and must include no more than three (3) councillor members and at least three (3) independent (non-councillor) members.

It is noted that the Participation Agreement provides for the payment of a *Participation Return* (a form of dividend) to the Participants on the basis of their *Participation Rights*. Such rights are determined on the basis of the Participating Council's Regulated Asset Base as at 1 July 2010.

4.3 Organisational Arrangement

4.3.1 Unitywater Organisation Structure

Unitywater's organisational structure is shown in **Figure 4.3**. This is the basis upon which its budget is compiled (refer **Section 4.5** for further discussion).

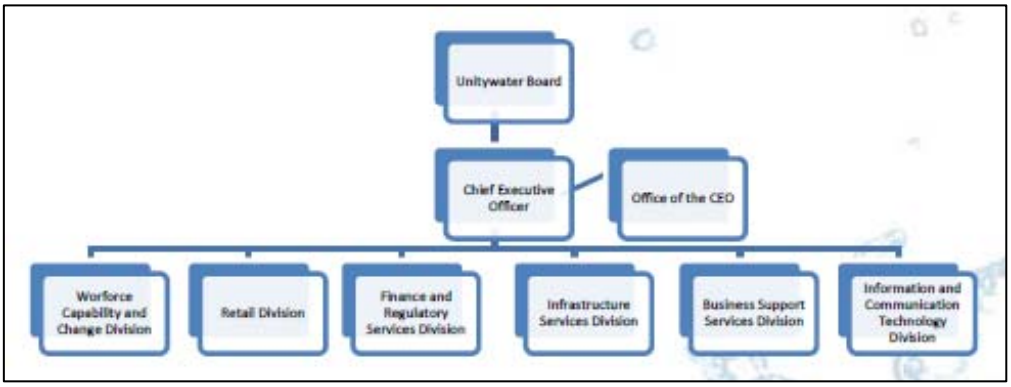

Figure 4.3: Unitywater Organisation Structure[17]

A brief overview of the responsibilities of each of the divisions, based on organisation structures and responsibility overview information provided for the purposes of this review, is as follows:

- **Workforce Capability and Change Division** – principally responsible for the management of Unitywater's human resources.
- **Retail Division** – acts as primary custodian of Unitywater's customers, customer relationships, servicing and billing. The Division comprises four branches, namely Revenue Assurance, Customer Service, Programs and Information, and Communications and Marketing.
- **Finance and Regulatory Services Division** – provides Unitywater's financial management /accounting functionality as well as managing its pricing and regulatory affairs and monitoring the business' performance at a strategic level.

[17] Source: Unitywater, *Interim Price Monitoring Submission – 2012-13; Submitted to Queensland Competition Authority*, 31 August 2012, page 18.

- **Infrastructure Services Division** – responsible for the management of Unitywater's infrastructure assets (refer **Section 4.3.2**).
- **Business Support Services Division** – provides internal support functions to the business. Functions include Administration (administrative support and business information/records management), Business Sustainability (Integrated Management System implementation), Business Services (procurement, logistics, fleet, and property management), Legal Services, and Risk and Compliance Services (strategic and business risk review and reporting, insurance, and compliance framework and governance).
- **Information and Communication Technology Division** – responsible for development and ongoing management of Unitywater's information and communication technology systems.

4.3.2 Infrastructure Services Division

As noted above, the Infrastructure Services Division (ISD) is responsible for the management of Unitywater's infrastructure assets. As it accounts for approximately 85 percent of Unitywater's operating expenditure budget in 2012/13,[18] it is considered appropriate to understand the function of this Division in more detail.

Infrastructure Services Division comprises six (6) branches as follows:

- **Strategic Planning and Asset Management (SPAM)** – owner of the water supply and sewerage network assets and treatment plants: this branch comprises sections responsible for development services; strategic planning; network planning; capital works planning; and strategic asset management.
- **Field Services** – maintenance provider: this branch comprises sections responsible for electrical, instrumental and control; mechanical services (north and south); civil response (north and south); civil planned maintenance; and field support.
- **Treatment Plants** – operator of the treatment facilities: this branch comprises sections responsible for treatment plant operations (northern region and southern region); systems and procedures; treatment technologies; and trade waste.
- **Network Operations** – monitoring and control of network assets (excluding treatment plants): this branch comprises sections responsible for systems control; planned services, engineering operations; and performance and compliance management.
- **Asset Creation** – manager of the delivery of infrastructure projects (capital works): this branch comprises sections responsible for network projects; major projects; private works and renewals; construction services; and special projects (SCADA).
- **Technologies** – provider of consulting and specialist services in respect of the engineering, environmental and water quality science disciplines: this branch comprises sections responsible for scientific services; environmental affairs; technologies business growth; technical support; and water quality.

[18] Based on Divisional budget information provided by Unitywater (*UW Divisional Budgets.xls* and *ISD Branch Budgets.xls*).

Documentation including the *ISD Operating Model*, *ISD Branch Summaries* and *Field Services Functionality Chart* provide more information in respect of the responsibilities and functions of the various sections that comprise the Infrastructure Services Division.

4.3.3 Assessment of Organisational Arrangements

As noted, organisation structures and additional details in respect of a sample of these Divisions have been provided for review.

On the basis of Halcrow's review of this information, it appears that Unitywater is organised and undertakes functions that are consistent with other water industry distributor-retailer organisations. On this basis, Halcrow is of the view that the organisational arrangement provides an appropriate platform for operational efficiency.[19]

Halcrow also notes Unitywater's advice[20] that it is conducting a review of its organisational structure and the optimum size of the organisation for the next five years. It is expected that such a review will identify any opportunities for further efficiencies and associated reductions in operating costs.

4.4 Management Systems

4.4.1 General

Unitywater operates in accordance with/implements a number of management systems that either drive or support its operations. Key systems in respect of the development of its operating and capital expenditure programs are its:

- Corporate Planning Framework; and
- Asset Management Framework.

These frameworks provide overall operational guidance for Unitywater; their implementation is supported by various processes and information management systems, some of which are still being transitioned or newly implemented following the formation of Unitywater.

4.4.2 Corporate Planning Framework

Unitywater's corporate planning is undertaken in accordance with a three-tiered framework which comprises the following:

- **Statement of Obligations:** this plan, which is incorporated as a schedule to the Participation Agreement (refer **Section 4.2.3**) is set by the Participants, ie. Unitywater and its constituent councils, and reviewed every five years. It identifies the obligations of the Participants in respect of:

[19] Halcrow notes that it is not an organisational management consultant; observations are made on the basis of apparent consistency with other water entities delivering similar services.

[20] Personal comment during meetings conducted on 4/5 October 2012.

- preparation and delivery of the Water and Wastewater Network and Services Plan;
- governance and risk management
- sustainability and service delivery;
- environmental management; and
- compliance.

- **Strategic Plan:** this plan is prepared by Unitywater in accordance with the Statement of Obligations and includes the strategic objectives of the business; and
- **Water and Wastewater Network and Services Plan:** this is the annual operational plan prepared by Unitywater in accordance with the Statement of Obligations and the Strategic Plan.[21]

The *Water and Wastewater Network and Services Plan* (Netserv Plan) is required to include:

- Identification of the outcomes to be delivered by Unitywater in respect of:
  - desired standards of service;
  - meeting future demands for service;
  - complying with obligations specified in the Statement of Obligations; and
  - complying with obligations imposed by/under legislation;
- a description of how Unitywater proposes to deliver those outcomes;
- Unitywater's revenue requirements in the Regulatory Period;[22] and
- the proposed price to be charged for each of the prescribed services.

The 'Netserv Plan' is to be developed in accordance with:

- the Participation Agreement;
- the *South-East Queensland Water (Distribution and Retail Restructuring) Act, 2009* and amendments;
- the Sustainable Planning Act, 2009 and amendments;
- the SEQ Regional Plan;
- the SEQ Water Strategy;
- any Sub-regional Total Water Cycle Management Plans made by the Queensland Water Commission under the SEQ Regional Plan; and
- any particular requirements of the QCA for the purpose of enabling it to make a price determination for the prescribed services over the Regulatory Period.

Development of the 'Netserv Plan' will be dependent upon detailed planning work undertaken in accordance with Unitywater's Asset Management Framework.

[21] The *Water and Wastewater Network and Services Plan* is required to be in place by 1 July 2013; it is currently in draft form.

[22] 'Regulatory Period' is the five (5) year period commencing 1 July 2013.

4.4.3 Asset Management Framework

4.4.3.1 General

Unitywater implements an Asset Management Framework (System), the scope of which is represented in **Figure 4.4**. At the heart of the system is a process, represented in **Figure 4.5**, whereby 'Implementers' draw on the services/inputs of 'Enablers' to deliver the required 'Outcomes'.

In essence, Unitywater's asset management system involves the implementation of asset strategies using clearly defined processes and tools to ensure the effective whole of life management of its infrastructure asset portfolio, such that it meets its obligations with respect to the delivery of agreed levels of service.

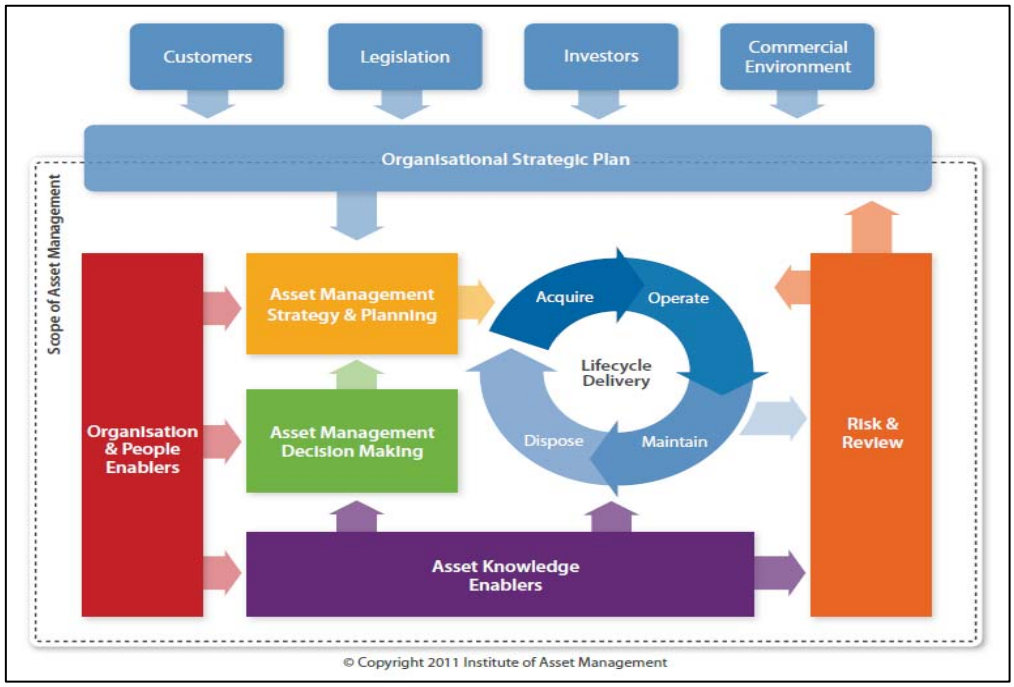

Figure 4.4: Conceptual View of Unitywater Asset Management System[23]

[23] Source: Unitywater, *Asset Management Overview; 2012/13 Price Monitoring Review; 4 October 0212* (PowerPoint presentation).

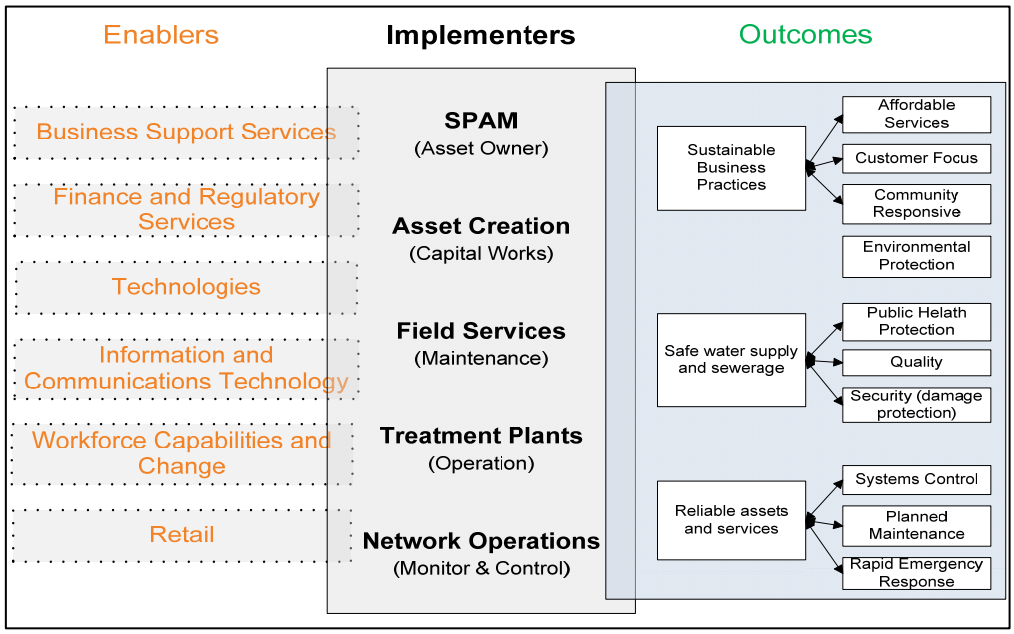

Figure 4.5: Unitywater Asset Management Implementation Process[24]

4.4.3.2 Asset Strategies

Unitywater implements a number of strategies in respect of each of its networks (water and sewerage). These include, but are not limited to:

- Water Supply Networks:
  - Growth Management;
  - Renewals;
  - Water Quality;
  - System Leakage (reduction of unbilled water); and
  - Energy Efficiency.
- Sewerage Networks:
  - Growth Management;
  - Renewals;
  - Sewage Overflow Abatement;
  - Sewer Odour and Corrosion Mitigation; and
  - Energy Efficiency.

A review of Unitywater's Maintenance Strategy[25] (provided as a representative sample) reveals that it effectively documents a strategy that will guide the maintenance of its infrastructure assets. It addresses key elements, including:

- Purpose of the strategy;
- Goals and Objectives to be achieved through implementation of the strategy;
- identification of the relevant Business Drivers (which include Levels of Service and compliance with Unitywater's *Customer Charter*);

[24] Ibid.

[25] Unitywater, *Maintenance Strategy; Infrastructure Assets* (Version 2.0), May 2012.

- an overview of the key elements of Maintenance Management;
- a brief outline of the proposed basis of Strategy Implementation (for example, it identifies reliance on the Consolidated Asset Management System (CAMS) for maintenance planning);
- an outline of the Delivery Model, which includes involvement (roles and responsibilities) of the Strategic Planning and Asset Management, Network Operations and Field Services Branches;
- identification of Related Processes, including Asset Renewals and Operational Improvements;
- nomination of Targets and Monitoring requirements for the assessment of performance; and
- an outline of the approach to be adopted for Continual Improvement.

Halcrow understands that Unitywater is currently in the process of fully developing Asset Management Plans (including Maintenance Plans) by asset type. These plans, which will be approved by the Asset Management Committee in accordance with Unitywater's governance regime (refer **Section 4.4.3.6**), will form the basis for practical management of the infrastructure assets.

Fully developed and implemented Asset Management Plans are expected to lead to improved operational and maintenance planning, thereby leading to greater efficiencies. Halcrow expects that the full development of these Plans will involve identification of the most appropriate (optimal) management strategy for each asset class based on a robust understanding (supported by recorded data) of asset condition and criticality (and the resultant risk); operational and, more specifically, maintenance planning will be more closely tailored to actual needs rather than adopting approaches on the basis of assumed typical performance.

4.4.3.3 Asset Management Tools

Practical application of the Asset Management System and its supporting processes is implemented through the integrated use of a variety of corporate and asset management specific tools, including:[26]

- Corporate level:
  - SCADA – System Monitoring and Control;
  - CAMS – Maintenance Management;
  - MFO – Data in Field, Dispatch;
  - System Leakage Management;
  - Decerto – Water Supply Systems Operation;
  - Unify – Customer Service;
  - UniMap (GIS) – As Constructed Data, Imagery, etc;
  - Intelex – Quality system; and
  - Objective – document and records management.

[26] Unitywater, *Asset Management Overview; 2012/13 Price Monitoring Review; 4 October 0212* (PowerPoint presentation).

- Asset management specific:
  - Demand and Load Forecasting and Tracking Tool;
  - Dynamic Water & Sewerage Models (Infowater and InfoSWMM;
  - Connections Applications Management Tool;
  - CapitalPLAN – Capital Works Plan (20 yr;
  - Primervera P6 – Scheduling;
  - Contract6 – Contract management;
  - Overwater – Asset Risk Profile Determination; and
  - Maintenance Planner – Maintenance Management Profile.

A number of the corporate level tools are currently being developed as part of the transitional arrangements; these include, for example, the GIS System and the Consolidated Asset Management System (CAMS) (refer **Section 6.3** for further discussion of these specific projects).

The development of these corporate tools (including the GIS and Consolidated Asset Management systems) is being implemented under 'Program Paramount', the management approach being used by Unitywater to deliver the consolidation phase of its organisational development. The focus of 'Program Paramount' has been to identify opportunities for efficiencies and implement the systems and processes required for a mature business; the program is investing in a mix of people, process and system based initiatives.[27]

Specific gains to be achieved through full implementation of the GIS System (including data capture) and the Consolidated Asset Management System (CAMS) will include:

- a clearer and more integrated understanding of asset condition and the ability to better plan and implement maintenance activities; and
- structured programming, execution and monitoring of maintenance activities.

Unitywater has identified that implementation of the GIS System will realise tangible benefits in the order of $4.4 million[28] (refer **Appendix A.8.4** and Table A.23), whilst implementation of the CAMS will realise cost savings of $2.54 million over four years.[29]

Unitywater has further identified that Program Paramount will deliver:[30]

- labour savings of $2 million and ICT Service Level Agreement savings of $1.5 million in 2012/13; and
- cumulative savings of $44.56 million (labour, contracted services, materials and services) in the long term financial model for the period 2013/2014 to 2016/2017.

Whilst Unitywater has indicated that its 2012/13 forecast expenditure incorporates some of the benefits of Program Paramount, there are further efficiencies that have not yet been brought to account.

[27] Unitywater, *Interim Price Monitoring Submission – 2012-13; Submitted to Queensland Competition Authority*, 31 August 2012.

[28] Timeline for benefit realisation not identified.

[29] Unitywater, *Program Paramount Forecast Spend and Benefits (Board Paper)*, 26 April 2012, Attachment 3.

[30] Unitywater, *Program Paramount Forecast Spend and Benefits (Board Paper)*, 26 April 2012, page 7.

4.4.3.4 Capital Planning

Unitywater's capital program is driven by a number of primary factors including Growth, Renewal, Improvements and Compliance (refer **Section 6.1** for further discussion).

Unitywater's approach to planning for growth is summarised in **Figure 4.6**. This process is driven by overall demand projections, which in turn are based on population forecasts and adopted levels of service. Growth is essentially an external driver of capital works.

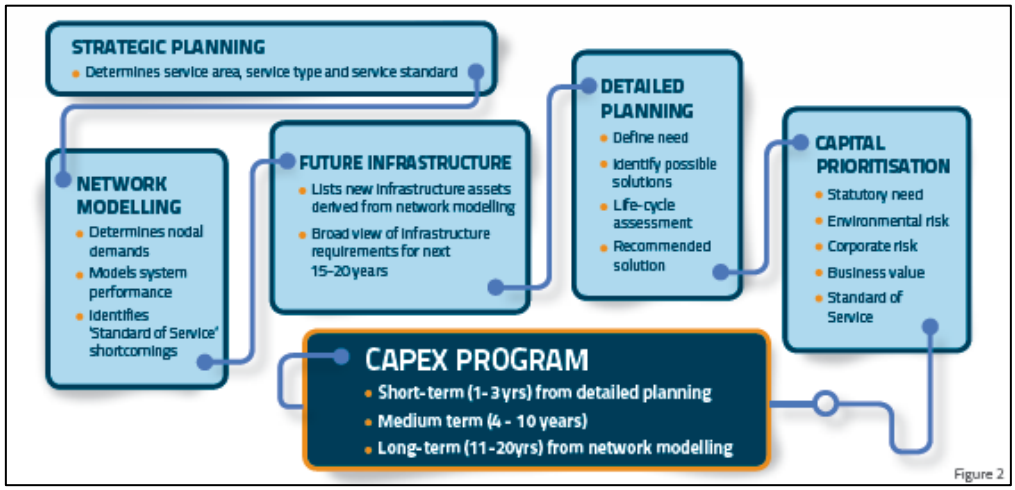

Figure 4.6: Unitywater Capital Planning for Growth[31]

Capital planning in response to renewal, improvement or compliance drivers is more typically identified on the basis of internal monitoring of condition and/or performance (which can also support identified requirements for growth). Unitywater advised that its asset portfolio (as a whole) is relatively young and (its civil infrastructure in particular) has significant remaining life; accordingly, there has been limited need for investment in asset renewal to date.

In either case, Unitywater's Capital Works Justification Manual[32] outlines in detail the processes that make up its capital planning and justification framework. It also identifies requirements in respect of supporting documentation and (importantly) the decision making hold points.

The processes outlined represent a robust planning process. Halcrow's review of a sample of capital projects and programs to be implemented (in part or in total) during 2012/13 reveals that these processes are, in general, effectively implemented.

[31] Source: Unitywater, *Netserv Plan; Part A (Draft Copy – For Consultation Purposes Only)*, undated, page 14.

[32] Unitywater, *Capital Works Justification Manual*, (Document No: 02911; Revision No: 3), 22 September 2011.

4.4.3.5 Maintenance Management Planning

As discussed in **Section 4.4.3.2**, Unitywater has a documented strategy that outlines its approach to maintenance management.

Implementation of the Maintenance Strategy will initially involve the development of maintenance activities and frequencies based on current maintenance activities. These activities will need to be benchmarked against practices adopted across the water industry, with adjustments made to reflect the local situation.

Once the Consolidated Asset Management System (CAMS) has been fully implemented, and the maintenance approach for various asset classes and types are identified and approved, maintenance activities will be implemented in accordance with the respective Asset Management Plans. These plans will identify the maintenance types, activities, frequencies and triggers for implementation.

Unitywater recognises the benefits to be realised through the full implementation of CAMS, which is based on the Maximo Enterprise Asset Management System. Once fully populated by relevant asset data (including condition and performance data), this system will provide the knowledge base upon which to develop plans comprising a prudent and efficient balance of maintenance types (planned/routine and unplanned/reactive, and their respective sub-types) and processes. As previously mentioned (refer **Section 4.4.3.2**), this will lead to operational efficiencies and associated cost reductions.

4.4.3.6 Governance Arrangements

Unitywater's Asset Management Framework incorporates governance arrangements structured to the nature and value of approvals being sought. Governance bodies and related instruments include:

- the Unitywater Board and Committees, including:
  - Capital Works Committee (which, for example, meets monthly and is responsible for approval in respect of specific projects having a value in excess of $5 million and programs of work);
  - Audit and Risk Committee; and
  - Nominations and Remuneration Committee (primary focus is skills retention);
- 'Internal' (Management) Committees, including:
  - Asset Steering Committee (responsible for all network and treatment (infrastructure) asset related investment); and
  - Investment Steering Committee (responsible for all non-infrastructure related investment);
- the Infrastructure Services Division Operating Model;
- Instrument of Delegations;
- Operating Level Agreements; and
- Role Summaries.

Based on the overview provided by Unitywater,[33] the governance arrangements in respect of the management of Unitywater's assets is considered to be generally appropriate.

4.4.3.7 Asset Management Benchmarking

Unitywater has once again (in 2012) participated in the Water Services Association of Australia's (WSAA's) benchmarking of asset management practised by Australian and overseas water utilities. This process involves the validation by independent consultants of a self-assessment undertaken by the subscribing water utilities in respect of their asset management practices.

WSAA's Aquamark Asset Management Benchmarking Framework is used as the basis of the assessment. Previous benchmarking has been undertaken in 2004 and 2008, which is prior to the establishment of Unitywater.

Under the process, asset management practices and performances are assessed against seven (7) primary functions, as follows:

1. Corporate policy and business planning;
2. Asset capability and forward planning;
3. Asset acquisition;
4. Asset operation;
5. Asset maintenance;
6. Asset replacement and rehabilitation;
7. Business support systems.

A draft report[34] on its asset management performance has been provided to Unitywater for internal review. Whilst the report is subject to further input from both Unitywater and other parties, Unitywater was found to have demonstrated relatively strong asset management practices in a number of areas with asset financial management, quality management, equipment/product/design standards and procurement being assessed as well developed.

From an overall perspective, Unitywater's performance was assessed to be moving towards the median performance of its peer group (refer **Figure 4.7**). A number of improvement opportunities have been identified, which Unitywater is now moving to address.

During interviews/meetings on 4/5 October 2012, Unitywater indicated that it expects implementation of these improvements to realise significant cost savings. For example, as previously noted, it expects savings in the order of $2.54 million over four years as a result of the full implementation of its Combined Asset Management System (CAMS). Halcrow considers such gains to be achievable.

[33] Overview provided as part of presentation given by and discussions with Unitywater staff on 4 and 5 October 2012.

[34] Not sighted by Halcrow.

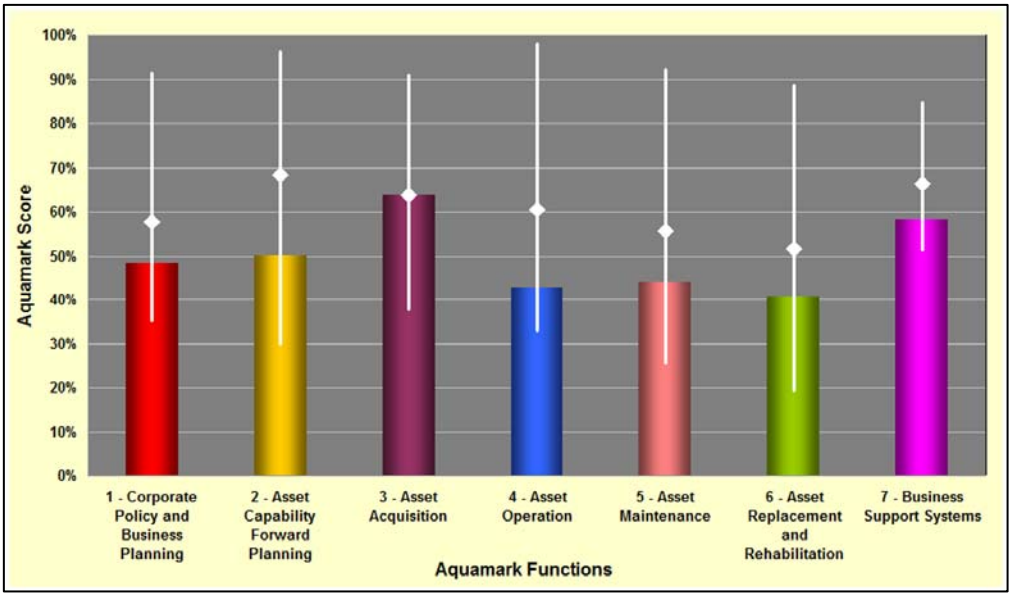

Figure 4.7: Unitywater Aquamark Assessment – Comparison to Peer Group[35]

4.5 Budgeting Approach

As previously noted, Unitywater has advised that it prepares its annual operating budget on a divisional basis. It uses a combination of 'bottom up' or 'zero based' budgeting, past performance and benchmarking to develop the budget in each case.

It notes (in its draft Netserv Plan) that:[36]

"*Operational expenditure is justified as prudent and efficient in a range of ways. Where we can build cases for the expenditure from the bottom up, we do so. For instance, to justify spending on energy, we analyse the power consumption of our pumping stations and sewage treatment plants and their necessary running time over a year to calculate a figure for expected power consumption.*

In other cases, where it is more difficult to take a 'bottom up' approach, we benchmark against industry best practice and seek additional efficiencies.

By developing more rigorous maintenance strategies and procedures for our assets we can better assess the staffing levels required to keep our assets in optimal working condition."

Halcrow has seen some evidence of these approaches in reviewing the justification of Unitywater's expenditure proposals. For example, documentation outlining the budgeting processes adopted by branches of the Infrastructure Services Division (Network Operations, Field Services, Treatment Plants and Technologies) has been provided for review.[37] These show elements of 'bottom up', historical cost and benchmarking approaches to budget development. Field Services Branch engaged a

[35] Unitywater, *Asset Management Overview; 2012/13 Price Monitoring Review; 4 October 0212* (PowerPoint presentation).

[36] Unitywater, *Netserv Plan; Part A (Draft Copy – For Consultation Purposes Only)*, undated, page 15.

[37] Unitywater, *QCA 2012-13 Operating Cost Review; Infrastructure Services Division, Network Operations Branch* and attachments;
Unitywater, *QCA 2012-13 Operating Cost Review; Field Services* and attachments;
Unitywater, *QCA 2012-13 Operating Cost Review; Infrastructure Services Division, Treatment Plants Barnch* and attachments; and
Unitywater, *QCA 2012-13 Operating Cost Review; Technologies* and attachments.

consultant to support it in the development of its 2012/13 budget. The approach adopted has not, however, been readily apparent in all cases.

As discussed in **Section 4.4.3.4**, Unitywater's capital expenditure budgets are developed through its capital planning processes. The Project Justification Process,[38] which incorporates 'gateway' milestones at which detailed review of each project is undertaken, provides the procedural rigour required to ensure that the project is both prudent and efficient. A risk based prioritisation model is used as part of the justification process.

Unitywater has also established an internal investment review process to develop business cases for (non-network) investment initiatives aimed at improving the efficiency and effectiveness of its business operations. Whilst this review and approval process is principally related to capital investment, it is also applied in respect of initiatives involving a combination of capital and operating expenditure or operating expenditure alone.

On the basis of Halcrow's observations, Unitywater's budgeting approach is consistent with that adopted by other similar water entities. Providing the outlined approach is effectively implemented, it should provide the necessary rigour to ensure prudence and efficiency in respect of Unitywater's expenditure/investment proposals.

4.6 Summary

Unitywater was created in 2010 as a result of the Queensland Government's structural reform of the South East Queensland water sector. It is a council owned distributor-retailer entity derived through the integration of the water businesses of its two constituent councils (Moreton Bay and Sunshine Coast).

Given that these structural changes have only recently occurred, Unitywater operates in a changing environment. A focus of its current activities is the completion of its transition to a new business regime, a process that has comprised business establishment and now consolidation; this is expected to be complete by 1 July 2013. A third phase, involving business optimisation will follow.

On the basis of Halcrow's review of Unitywater's management systems and processes, it has made the following observations:

- From an overall perspective, it appears that Unitywater is organised and undertakes functions that are consistent with other water industry distributor-retailer organisations.
- Unitywater's Corporate Planning Framework, which comprises its *Statement of Obligations*, *Strategic Plan* and *Water and Wastewater Network and Services Plan* (Netserv Plan) is substantially in place. Its Netserv Plan is currently in draft form and expected to be finalised before 1 July 2013, as required.

[38] As documented in: Unitywater, *Capital Works Justification Manual*, (Document No: 02911; Revision No: 3), 22 September 2011.

- Unitywater has defined and is beginning to implement the key elements of an effective Asset Management Framework. The supporting elements of the framework, ie. the strategic plans, and more specifically the Asset Management Plans (for each asset class), are yet to be fully developed. Full development and implementation of these Asset Management Plans is expected to lead to improved operational and maintenance planning, thereby leading to greater efficiencies.
- Detailed asset management planning remains dependent upon implementation of key corporate tools that will support the process. The Consolidated Asset Management System (CAMS), which will be based on the Maximo Enterprise Asset Management System, together with a fully implemented GIS System, will provide the knowledge base and processes essential to the effective management of infrastructure assets.
- Unitywater's capital planning process, which incorporates 'gateway' reviews at appropriate milestones and a risk-based prioritisation process, appears to be robust. Effective implementation of these processes ensure prudence and efficiency in the development and delivery of the capital program, as generally found through the detailed review of a sample of capital projects/programs (refer **Section 6**).
- Maintenance planning processes are in place, however, are reliant on the full implementation of the Asset Management System before they can be expected to lead to optimal efficiency. Once fully populated by relevant asset data (including condition and performance data), the Asset Management System will provide the knowledge base upon which to develop plans comprising a prudent and efficient balance of maintenance types and processes, thereby leading to operational efficiencies and associated cost reductions.
- Several approaches are used in the development of operational budgets. Whilst these approaches are generally consistent with that adopted by other similar water entities, they are yet to be fully informed by effective asset management planning. Primary activities should ultimately be undertaken in response to clearly documented operational processes and procedures, and robust maintenance management plans.

In summary, whilst still in development, Unitywater's management systems and approach are generally consistent with other water industry distributor-retailer organisations. Halcrow is of the view that, once fully implemented, these management systems will provide the necessary rigour to ensure prudence and efficiency in respect of Unitywater's expenditure/investment proposals.

5 Operating Expenditure

5.1 Overview

Unitywater has reported actual and forecast regulated operating expenditure of $1,316.4 million ($nominal) over the five (5) year period from 2010/11 to 2014/15 with $258.5 million forecast in 2012/13, as shown in **Table 5.1**. If bulk water purchases are excluded, operating expenditure over the period amounts to $734.3 million ($nominal) with $143.6 million in 2012/13.

Table 5.1: Actual and Forecast Operating Expenditure ($'000 nominal)

Service	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Expenditure 2010/11 to 2014/15
Total Operating Expenditure	187,554	213,666	240,683	263,085	296,811	330,342	1,344,587
Non-regulated	5,894	6,661	7,010	4,568	4,827	5,104	28,170
Total Regulated Operating Expenditure	181,660	207,006	233,673	258,517	291,984	325,238	1,316,417
Bulk Water	62,684	65,816	92,494	114,938	141,201	167,639	582,088
Total Regulated Operating Expenditure (excl. Bulk Water)	118,976	141,189	141,179	143,578	150,783	157,599	734,329

Forecast total regulated expenditure in 2012/13 is an increase of 10.6 percent over 2011/12. If bulk water purchases are excluded, there is a small (1.7 percent) change, which is less than forecast escalation of 2.5 percent (ie. a reduction of 0.8 percent in real terms).

The share of bulk water costs of total of operating expenditure is growing as bulk water costs are increasing at a faster rate than other operating expenditure components. The cost of bulk water as a proportion of total operating expenditure increases from 32 percent in 2010/11 to 52 percent in 2014/15.

The cost of bulk water is a combination of the rate charged ($/ML) and the volume purchased (ML). The rate charged is set by the Government and is a pass through item for Unitywater. The volume purchased can be influenced by Unitywater through, for example, improved leakage control and taking action to reduce theft.[39] However, the

[39] Unitywater is targeting a reduction in non revenue water from 10.8 to 10.4 per cent of total water purchases in 2012/13. These figures are comparable to interstate standards and significantly lower than for Queensland Urban Utilities. Source: Unitywater's Interim Price Monitoring Submission, August 2012, table 5.4.1.

major factors affecting demand in the short term are weather conditions and whether water restrictions are in place.[40]

Significant factors affecting the 2011/12 result were:[41]

- Adopting in budget preparation a $10 million reduction to operating expenditure including efficiency measures, deferral, cancellation, scope correction and reprioritisation. While Unitywater indicated in its submission that this reduced base was adopted in setting the 2012/13 forecasts, it has more recently advised[42] that $2.8 million (of the $10 million) will be expended in 2012/13. This comprises:
  - $2 million for the deferred but now fully operational Kedron-Brooke Scheme;[43] and
  - $0.8 million of Project Paramount savings ($2.0 million) spent on consultants in response to "*a more complex than expected regulatory environment*".

  In the absence of supporting information the efficiency of this expenditure has not been separately assessed by Halcrow.
- Increasing the level of corporate support costs that were capitalised from $10 million to $21 million. This resulted from a change in policy on capitalisation that has also been adopted for 2012/13.[44] This change in capitalisation policy is accepted by Halcrow on the basis of the Auditor-General's unqualified opinion on the 2011/12 statutory accounts; the equivalent figure for 2012/13 is $21.9 million.[45]

The major efficiency measure adopted for the 2012/13 forecast is a reduction of $3.4 million[46] in employee expenses associated with 45 employees (36 engaged in operating expenditure; 9 in capital expenditure)[47] taking up the offer of voluntary redundancies. Redundancy outlays were accounted for in 2011/12.[48,49]

A further efficiency saving of $1.3 million is noted for 2012/13 representing a net reduction in the cost of service level agreements for ICT. [50]

There are non-recurrent expenditures of $8.6 million in 2011/12 and $6.3 million in 2012/13 associated with Program Paramount and further development of 'corporate

[40] Water demand forecasts are the subject of separate consultancy let by the QCA.

[41] Unitywater's Interim Price Monitoring Submission, August 2012, pages 91 and 92.

[42] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[43] It is noted that the capital expenditure in respect of Kedron-Brooke Scheme – New Rising Main Project (which was required to divert sewage flows form the Brendale WWTP to QUU's Luggage Point STP) was reviewed during the 2011/12 Interim Price Monitoring Review.

[44] Discussions with Unity Water, 5 October 2012.

[45] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[46] Unitywater Submission to QCA, dated August 2012, page 91.

[47] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[48] Ibid

[49] Unitywater has not identified the amount of these outlays.

[50] Unitywater's email dated 4 December 2012.

and retail capability'.[51] Program Paramount focuses on system and business integration related to the amalgamation of the constituent Councils' water businesses.

The net effect of these measures on operating expenditure between 2011/12 and 2012/13 is summarised in **Table 5.2**.

Table 5.2: Aggregate changes in Operating Expenditure – 2011/12 to 2012/13

Action	Change 2012/13 on 2011/12 ($million)
Reduction in efficiency measures adopted in 2011/12	+$2.8
Additional capitalisation of corporate costs	-$0.9
Voluntary redundancies (36 in respect of Operating Expenditure)	-$2.5
ICT savings	-$1.3
Reduction in non-recurrent expenditure (Project Paramount)	-$2.3
Total	-$4.2

This reduction of $4.2 million compares with the actual increase of $2.4 million in regulated expenditure (excluding bulk water) between 2011/12 and 2012/13. Paralleling this increase of $2.4 million in regulated expenditure is a reduction of the identical amount in non-regulated expenditure. Unitywater's explanation for the reduction in non-regulated expenditure is a change in cost allocation policy.[52] These outcomes are explored further below.

5.2 Overall Assessment of Forecast Expenditure

5.2.1 Introduction

Whilst Halcrow's review of Unitywater's operating expenditure is focussed on a sample of expenditure components (refer **Section 5.3**), an initial assessment has been undertaken from an overall perspective. In particular, Halcrow has:

- Considered the breakdown of expenditure by service, component (expenditure type) and region;
- Assessed the relative change in expenditure on the basis of the volume of water supplied and the number of properties serviced by sewerage services;
- Identified the drivers of expenditure increases and assessed impact of:
  - 'business as usual' increases;
  - efficiency opportunities and new initiatives adopted by Unitywater;
  - adopted levels of service; and
- Compared the current and past expenditure forecasts.

The following analysis concentrates on regulated operating expenditure excluding bulk water purchases, ie. those items over which Unitywater can exercise the most control.

[51] Unitywater Submission to QCA, dated August 2012, page 94.

[52] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

5.2.2 Operating Expenditure by Service

A breakdown of the total regulated operating expenditure by service is shown in **Table 5.3**. **Table 5.4** shows the percentage share of total expenditure by service, whilst **Table 5.5** shows the year-on-year percentage change (on the basis of $nominal) for each service share.

Table 5.3:[53] Unitywater Total Operating Expenditure by Service ($'000 nominal)

Service	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Water (excl. Bulk Water)	43,839	41,745	43,611	44,484	46,188	48,667
Other Core Water Services	3,221	8,713	8,384	9,051	9,448	9,917
Wastewater	70,317	87,000	84,749	86,198	91,095	94,795
Trade Waste	1,600	2,033	2,122	2,079	2,186	2,248
Other Core Wastewater Services	0	2,635	2,312	1,765	1,866	1,972
Total Regulated Operating Expenditure (excl. Bulk Water)	118,976	141,189	141,179	143,578	150,783	157,599
Bulk Water	62,684	65,816	92,494	114,938	141,201	167,639
Total Regulated Operating Expenditure	181,660	207,006	233,673	258,517	291,984	325,238

Table 5.4: Percentage Share of Expenditure by Service (excluding Bulk Water Costs)

Service	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Water (excl. Bulk Water)	36.8%	29.6%	30.9%	31.0%	30.6%	30.9%
Other Core Water Services	2.7%	6.2%	5.9%	6.3%	6.3%	6.3%
Wastewater	59.1%	61.6%	60.0%	60.0%	60.4%	60.1%
Trade Waste	1.3%	1.4%	1.5%	1.4%	1.4%	1.4%
Other Core Wastewater Services	-	1.9%	1.6%	1.2%	1.2%	1.3%
Total Regulated Operating Expenditure (excl. Bulk Water)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Bulk Water as % of Total Operating Expenditure	34.5%	31.8%	39.6%	44.5%	48.4%	51.5%

[53] Unitywater return to QCA, Table 5.11.1, dated 31 August 2012.

Table 5.5: Percentage Change in Expenditure by Service

Service	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Water (excl. Bulk Water)	-	-4.8%	4.5%	2.0%	3.8%	5.4%
Other Core Water Services		170.5%	-3.8%	8.0%	4.4%	5.0%
Wastewater	-	23.7%	-2.6%	1.7%	5.7%	4.1%
Trade Waste	-	27.1%	4.4%	-2.0%	5.1%	2.9%
Other Core Wastewater Services		-	-12.3%	-23.6%	5.7%	5.7%
Total Regulated Operating Expenditure (excl. Bulk Water)	-	18.7%	0.0%	1.7%	5.0%	4.5%
Bulk Water	-	5.0%	40.5%	24.3%	22.8%	18.7%
Total Regulated Operating Expenditure	-	14.0%	12.9%	10.6%	12.9%	11.4%

The figures presented in these tables reveal the following:

- Operating expenses incurred providing wastewater and trade waste services comprise 62.7 percent of the total regulated operating expenditure (excluding bulk water) in 2012/13, whilst expenses incurred providing water services (distribution and retail) comprise the remaining 37.3 percent.
- The cost of water (excluding other core water services) and wastewater services increase at rates marginally less than forecast changes in the CPI in 2012/13. Other core water services attract the greatest increase (8.0 percent), although these comprise only 6.3 percent of total regulated operating expenditure (excluding bulk water).
- With the exception of 2010/11, the increase in bulk water costs is significantly greater than the remaining services (in total) which are forecast to fluctuate between no increase (in nominal terms) and an increase of 5 percent over the period 2011/12 to 2014/15. The cost of non bulk water services increases by 1.7 percent (less than forecast escalation) in 2012/13, which compares to an increase of more than 24 percent in cost of bulk water.
- Whilst excluded from this analysis, it is noted that there is a 35 percent decrease ($2.4 million) in the cost of providing non-regulated services in 2012/13.

5.2.3 Operating Expenditure by Expenditure Component

An alternative is to analyse costs by expenditure component (or type). A selection of these major expenditure components are analysed in more detail later in the report (refer **Section 5.3**), however, the following presents an aggregate view.

A breakdown of the total operating expenditure by component is shown in **Table 5.6**. **Table 5.7** shows the percentage share of total expenditure by component, whilst **Table 5.8** shows the year-on-year percentage change (again on the basis of $nominal) for each component share.

Table 5.6:[54,55]Unitywater Total Operating Expenditure by Line Item ($'000 nominal)

Expenditure Component/Type	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Employee Expenses	35,569.9	49,970.9	51,220.0	50,436.9	53,122.3	55,506.3
Electricity Charges	3,819.7	6,835.3	6,349.7	8,643.4	9,796.4	11,065.4
Other Materials and Services	14,693.3	14,540.1	15,766.2	22,537.9	23,754.7	24,894.4
Corporate Costs	35,470.2	35,194.7	33,690.6	32,245.1	32,978.5	33,629.8
Miscellaneous	29,423.2	34,648.5	34,152.1	29,714.9	31,131.1	32,503.4
Total Regulated Operating Expenditure (excluding Bulk Water)	118,976	141,189	141,179	143,578	150,783	157,599

Table 5.7: Percentage Share of Expenditure by Line Item (excluding Bulk Water Costs)

Expenditure Component/Type	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Employee Expenses	29.9%	35.4%	36.3%	35.1%	35.2%	35.2%
Electricity Charges	3.2%	4.8%	4.5%	6.0%	6.5%	7.0%
Other Materials and Services	12.3%	10.3%	11.2%	15.7%	15.8%	15.8%
Corporate Costs	29.8%	24.9%	23.9%	22.5%	21.9%	21.3%
Miscellaneous	24.7%	24.5%	24.2%	20.7%	20.6%	20.6%
Total Regulated Operating Expenditure (excluding Bulk Water)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5.8: Percentage Change in Expenditure by Line Item

Expenditure Component/Type	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Employee Expenses	-	40.5%	2.5%	-1.5%	5.3%	4.5%
Electricity Charges	-	78.9%	-7.1%	36.1%	13.3%	13.0%
Other Materials and Services	-	-1.0%	8.4%	43.0%	5.4%	4.8%
Corporate Costs		-0.8%	-4.3%	-4.3%	2.3%	2.0%
Miscellaneous	-	17.8%	-1.4%	-13.0%	4.8%	4.4%
Total Regulated Operating Expenditure (excluding Bulk Water)	-	18.7%	0.0%	1.7%	5.0%	4.5%

[54] Source: Unitywater return to QCA, Table 5.11.1, dated 31 August 2012.

[55] For the purposes of this assessment, 'Miscellaneous' expenditure includes Contractor expenses, Sludge Handling costs, Chemicals costs, Licence or Regulatory fees, Non-recurrent costs, and Indirect taxes.

Analysis of the figures presented in these tables reveal the following:

- Employee expenses comprise 35.1 percent of total regulated operating expenditure (excluding bulk water) in 2012/13 and are the largest component. They reduce by 1.5 percent or $0.8 million in comparison to the 2011/12 allowance.
- The largest increase is recorded in Other Materials and Services (+$6.8 million or 43.0 percent). This is partly offset by a reduction of $4.4 million or 13.0 percent in miscellaneous expenditure; Unitywater advises that these offsetting movements are in part the result of a reclassification of costs from Contractor expenses to Other Materials and Services.[56]
- A significant increase (36.1 percent) in Electricity expenses is also forecast.[57]

5.2.4 Operating Expenditure by Region

It is also appropriate to assess the allocation of operating expenditure by region (or municipality). A breakdown of the total operating expenditure by region is shown in **Table 5.9**. Consistent with the assessments outlined above, **Table 5.10** shows the percentage share of total expenditure by region, whilst **Table 5.11** shows the year-on-year percentage change (on the basis of $nominal) for each regional share.

Table 5.9:[58] Unitywater Total Operating Expenditure by Region ($'000 nominal)

Region	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	61,498	77,795	77,489	77,294	81,311	84,541
Sunshine Coast	57,479	63,394	63,690	66,284	69,472	73,058
Total Regulated Operating Expenditure (excluding Bulk Water)	118,976	141,189	141,179	143,578	150,783	157,599

Table 5.10: Percentage Share of Expenditure by Region

Region	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	51.7%	55.1%	54.9%	53.8%	53.9%	53.6%
Sunshine Coast	48.3%	44.9%	45.1%	46.2%	46.1%	46.4%
Total Regulated Operating Expenditure (excluding Bulk Water)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

[56] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[57] The actual electricity expenses for 2011/12 were much higher than forecast. If the 2012/13 budget is compared to the actual electricity expense figure for 2011/12 the increase is 22 percent. Unitywater email dated 24 October 2012.

[58] Unitywater return to QCA, Table 5.11.1, dated 31 August 2012.

Table 5.11: Percentage Change in Expenditure by Region

Region	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	-	26.5%	-0.4%	-0.3%	5.2%	4.0%
Sunshine Coast	-	10.3%	0.5%	4.1%	4.8%	5.2%
Total Operating Expenditure (excluding Bulk Water)	-	18.7%	0.0%	1.7%	5.0%	4.5%

Analysis of the figures presented in these tables reveal the following:

- Moreton Bay is the dominant region, attracting 54 percent of total operating expenditure (excluding bulk water) in 2012/13. Sunshine Coast attracts the remaining 46 percent. This is broadly consistent with the assumed distribution of both volume of water supplied and number of properties to which wastewater services are provided; Moreton Bay 50.8/52.6 percent and Sunshine Coast 49.2/47.4 percent.[59]
- Moreton Bay expenditure will decrease by 0.3 percent in 2012/13 while Sunshine Coast expenditure will increase by 4.1 percent. The population of the Sunshine Coast is forecast to grow at a marginally greater rate than Moreton Bay.[60]

5.2.5 Unit Cost Increases

In order to assess the impact of changes in total regulated operating expenditure at a unit service level, an assessment has been undertaken to allocate expenditure on the basis of the volume of water purchased by Unitywater, and by the number of properties to which wastewater services are provided (as an indicator of the change in customer numbers).

This analysis is presented in **Table 5.12**, which shows year-on-year movement for both of the indicators; it shows that on the basis of both measures, unit costs are decreasing. More specifically:

- These unit cost figures are reducing at a time when prices more generally, as measured by changes in the CPI, are increasing;
- Total regulated operating expenditure (excluding bulk water costs) per unit of water purchased reduces by 4.6 percent in 2012/13; and
- Total regulated operating expenditure (excluding bulk water costs) per number of wastewater properties reduces by 0.6 percent in 2012/13.

The difference between the two indicators is partly driven by the assumed growth in water consumption per customer, which follows the constraint exercised during the recent years of drought.

[59] Assessment based on Unitywater Interim Price Monitoring Submission, August 2012, Data Template worksheet 5.4.1.

[60] Unitywater submission to QCA, August 2012, page 94.

Table 5.12: Analysis of Expenditure Variances – Total Operating Expenditure (excluding Bulk Water)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Total Regulated Operating Expenditure (excluding Bulk Water)	118,976	141,189	141,179	143,578	150,783	157,599
Drinking Water Purchases (ML)	54,690	46,736	56,695	60,448	64,550	67,303
$/kL	2.18	3.02	2.49	2.38	2.34	2.34
% change		38.9%	-17.6%	-4.6%	-1.7%	0.2%
Wastewater Properties Serviced (No)	288,748	285,532	288,404	295,188	302,130	309,236
$/property	412.04	494.48	489.52	486.40	499.07	509.64
% change		20.0%	-1.0%	-0.6%	2.6%	2.1%

Source *Worksheet 5.4.1; Interim Price Monitoring Submission 2012/13 – Data Template*[61]

A similar analysis, but based on operating expenditure incurred in providing water supply services (excluding the cost of bulk water) and wastewater services respectively, is presented in **Table 5.13**. This again shows decreases, with specific changes in 2012/13 as follows:

- Water related operating expenditure (excluding bulk water costs) per unit of water purchased decreases by 4.3 percent to $0.74 per kilolitre; and
- Wastewater related operating expenditure per number of wastewater properties decreases by 0.6 percent to $292.01 per property.

The greater decrease in the unit cost of providing water services may again be reflective of the assumed growth in demand.

Table 5.13: Analysis of Expenditure Variances –Service Related

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Water (excl. Bulk Water) Expenditure	43,839	41,745	43,611	44,484	46,188	48,667
Drinking Water Purchases (ML)	54,690	46,736	56,695	60,448	64,550	67,303
$/kL	0.80	0.89	0.77	0.74	0.72	0.72
% change		11.4%	-13.9%	-4.3%	-2.8%	1.1%
Wastewater Expenditure	70,317	87,000	84,749	86,198	91,095	94,795
Wastewater Properties Serviced (No)	288,748	285,532	288,404	295,188	302,130	309,236
$/property	243.52	304.70	293.86	292.01	301.51	306.55
% change		25.1%	-3.6%	-0.6%	3.3%	1.7%

Source *Worksheet 5.4.1; Interim Price Monitoring Information Return 2012/13 – Data Template*[62]

[61] Number of properties serviced in 2009/10 and 2011/12 sourced from Worksheet 5.4.1; Interim Price Monitoring Submission 2011/12 – Data Template.

To provide a basis for comparison, it is noted that the equivalent unit rates for Queensland Urban Utilities (QUU) are as follows:

- Water related operating expenditure (excluding bulk water costs) per unit of water purchased is forecast to increase by 13.9 percent to $0.86 per kilolitre in 2012/13; this follows an increase of 40.0 percent in 2011/12; and
- Wastewater related operating expenditure per number of wastewater properties is forecast to increase by 3.9 percent to $262.13 per property; this follows a decrease of 1.5 percent in 2011/12.

On the basis these indicators, the unit cost of providing water services (excluding bulk water costs) is 16 percent higher for QUU than for Unitywater, whilst the unit cost of providing wastewater services by QUU is approximately 10 percent less than incurred by Unitywater. A brief assessment of the extent of infrastructure operated in each case reveals that:

- In respect of the water supply systems – Unitywater has roughly double the number of reservoirs, 17 percent more pumping stations and 37 percent greater pipeline length per megalitre of water delivered than QUU; and
- In respect of the sewerage systems – whilst the length of sewerage pipeline per property is similar for both entities, the ratio of treatment plants per property is approximately 10 percent greater for Unitywater and the number of pumping stations per property for Unitywater is approximately four (4) times the equivalent ratio for QUU.

These broad analyses suggest that Unitywater's costs of providing both water and, more specifically, wastewater services are more efficient than for QUU.

5.2.6 Drivers of the Variation in Operating Expenditure

5.2.6.1 General

Based on the information provided by Unitywater, Halcrow has identified the factors shown in **Table 5.14**, and their level of contribution, as the key drivers of the variation in Unitywater's operating expenditure (excluding bulk water) between 2011/12 (Q2 forecast) and 2012/13. These factors, and specifically the business-as-usual increases, are discussed in the following sections.

[62] Ibid.

Table 5.14: Drivers of Operating Expenditure Variations

Driver	Amount ($million)
2011/12 Q2 Outturn Forecast	141.2
less Non-recurrent expenditure in 2011/12	-8.6
Base forecast	132.6
plus Business as usual increase	+5.2
plus Non-recurrent expenditure 2012/13	+6.3
Plus reclassification of non-regulated expenses	+2.4
less Voluntary redundancies	-2.5
2012/13 Budget	144.0

5.2.6.2 Business-as-Usual Increases

Business-as-usual adjustments comprise a number of elements, as shown in **Table 5.15**.

Table 5.15: Business-as-Usual adjustments

Expenditure Item	Allowance ($million)
Escalation of employee expenses (4.3% of $51.22 million)	2.2
Carbon tax on Electricity purchases (10% of $6.35 million)	0.6
Escalation, including allowance for indirect carbon tax impact, on expenditure other than labour and electricity (3.25% of $83.6 million)	2.7
Non-carbon tax electricity price increases[63]	0.6
Increase in QCA regulatory fees[64]	1.4
Reduction in benefits from originally identified cost reduction measures	2.8
ICT savings	-1.3
Change to capitalised corporate expenditure	-0.9
Other savings net of effect of water consumption and sewage discharge variable costs (eg. chemicals, electricity)	-2.9
Total	5.2

As can be seen, the key drivers of the increase in business-as-usual increases are escalation, the imposition of the carbon tax, the increase in regulatory fees and a reduction in the quantum of previously identified cost reduction/efficiency measures.

[63] Unitywater,*Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012) shows electricity price increases of 19.5 percent including the carbon tax (10 percent). Given that electricity expenses have increased by 36.1 percent between 2011/12 and 2012/13 based on the 2012/13 Interim Price Monitoring Return, this implies growth in electricity consumption (MWh) of 13.9 percent (refer **Section 5.3.3** for further discussion).

[64] Unitywater submission to QCA dated August 2012, Table 30, page 94.

5.2.6.3 Escalation of Operating Costs

Overview:

As previously noted, operating expenditure is expressed in $nominal in this report. In developing its expenditure forecasts for 2012/13 and future years, Unitywater has adopted the cost escalation/indexation factors shown in **Table 5.16**.[65] More specifically, it has adopted a general escalation rate of 3.25 percent in 2012/13, with the exception of:

- Labour was increased at a rate of 3.8 percent or $40 (whichever is greater) in accordance with the Enterprise Bargaining Agreement, with an additional allowance of 0.5 percent for increment creep; and
- Electricity escalated at a rate of 19.5 percent.

Table 5.16: Unitywater Assumed Annual Cost Escalation Factors (%)

Expense	2012/13				2013/14			2014/15		
	Growth Basis[1]	Growth Comp[2]	Cost	Total[3]	Growth	Cost	Total	Growth	Cost	Total
Bulk Water:[4]										
▪ Moreton Bay	PIFU	6.6%	14.0%	21.6%	7.1%	13.1%	21.1%	7.1%	12.1%	20.0%
▪ Sunshine Coast	PIFU	6.6%	20.1%	28.1%	6.8%	17.6%	25.6%	1.7%	15.5%	17.4%
Chemical	PIFU	6.2%	3.25%	9.6%	7.5%	3.5%	11.2%	5.1%	3.4%	8.7%
Contractor	-	-23.6%	3.25%	-21.1%	2.4%	3.5%	5.9%	-0.1%	3.4%	3.3%
Corporate	-	-7.3%	3.25%	-4.3%	-	3.5%	3.5%	-2.1%	3.4%	1.2%
Electricity	PIFU	13.9%	19.5%	36.1%	3.7%	11.4%	15.6%	3.4%	11.4%	15.2%
Employee	-	-5.6%	4.3%	-1.5%	-2.7%	3.8%	1.0%	0.8%	3.4%	4.2%
Indirect Taxes	-	375.4%	3.25%	390.8%	-	3.5%	3.5%	-2.1%	3.4%	1.2%
Licence Fees	-	-7.3%	3.25%	-4.3	3.3%	3.5%	6.9%	0.4%	3.4%	3.9%
Non-recurrent	-	-29.6%	3.25%	-27.3	-	3.5%	3.5%	-2.1%	3.4%	1.2%
Materials & Services:[5]		38.5%	3.25%	43.0						
▪ direct	PIFU		3.25%		3.3%	3.5%	6.9%	0.4%	3.4%	3.9%
▪ network & retail	-		3.25%		0.7%	3.5%	4.3%	-1.4%	3.4%	1.9%
Sludge Handling	PIFU	-7.1%	3.25%	-4.1	3.3%	3.5%	6.9%	0.4%	3.4%	3.9%

Note:

1. *2012/13 growth was indicated to be either 'no growth' or 'Dwelling Growth" as forecast by PIFU (now Office of Economic and Statistical Research); actual figures adopted have not been nominated.*
2. *Growth computed by Halcrow on the basis of reported expenditure and cost escalation factors.*
3. *Total escalation factor computed on the basis of reported costs.*
4. *Bulk water cost escalation determined from publishes rates[66] with 2.5 percent applied to determine $nominal.*
5. *Escalation factors for Other Materials and Services computed at aggregate level only.*

[65] Unitywater Submission to QCA dated August 2012, Table 33, page 97 and Table 34, pages 97/98.

[66] Bulk water prices obtained from: http://www.qwc.qld.gov.au/reform/pdf/bulk-water-prices-061210.pdf

In the absence of specific growth factors for 2012/13 being provided by Unitywater, Halcrow has:

- Computed factors for total escalation on the basis of expenditure forecasts for 2011/12 and 2012/13 reported in the 2012/13 Interim Price Monitoring Return;[67] and
- Computed effective growth factors by applying the cost escalation factors nominated by Unitywater to the total escalation factors.

Adopting the reported growth in the number of wastewater connections as a surrogate of the PIFU forecasts,[68] the growth in the number of dwellings from 2011/12 to 2012/13 amounts to 2.4 percent at a regional level (2.4 percent for Moreton Bay and 2.3 percent for Sunshine Coast). It is also noted that the aggregate increase in water demand (for all purposes) in both Moreton Bay and Sunshine Coast amounts to 6.6 percent.[69] Whilst the computed effective growth factor for bulk water correlates with the forecast regional growth in water demand, neither this nor remaining factors correlate with the growth factors nominated (in principle) by Unitywater in its Interim Price Monitoring Submission.

Movements in bulk water prices are not reviewed here as they set by the Government and are a pass through item for Unitywater. It is, however, noted that the growth rate (1.7 percent) assumed in respect of bulk water costs for the Sunshine Coast region in 2014/15 appears low; no explanation has been provided by Unitywater.

The assumed growth in bulk water purchases (ML) will need to be compared with demand estimates prepared under a separate consultancy for the QCA. The outcome will drive the adopted growth rates for other items (eg. chemical costs) while some costs will be driven more by the growth in customer numbers (eg. direct other materials and services).

Movements in electricity prices are discussed in detail in **Section 5.3.3**.

Increase in Labour Rates:

Factors underlying Unitywater's assumed growth in wage/salary rates are as follows:

- the existing Enterprise Bargaining Agreement (EBA), which was certified by the Queensland Industrial Relation Commission on 18 January 2012 and will terminate on 30 June 2014;[70]
- adoption of a policy to standardise wage rates across Unitywater's area of operations such that employees are paid the same pay for the same work;
- an allowance for increment creep where salaries advance on an annual basis for satisfactory performance; and

[67] Source: Unitywater return to QCA, dated 31 August 2012, Table 5.11.1.

[68] Source: Unitywater return to QCA, dated 31 August 2012, Table 5.4.1.

[69] Source: Unitywater return to QCA, dated 31 August 2012, Table 5.4.1.

[70] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

- market pressures arising from Unitywater having to compete to retain existing staff and attract new appointees against other industries utilising a similar skill set.

Halcrow notes that Queensland has experienced strong demand for labour driven by the resources sector, although the effect of this has been diminished in South East Queensland by a softening in the tourism and construction sectors.

More recently, weakness in the world economy has adversely affected Queensland, pushing its unemployment rate above the Australian average. Queensland Treasury advises[71] that the trend unemployment reached 5.8 percent in August; this was 0.3 percentage point higher than in December 2011. This figure would have been greater but for the trend participation rate falling to a six year low.

The Queensland Government adopted the assumptions shown in **Table 5.17** in its 2012/13 budget.[72]

Table 5.17: Queensland Government Budget Assumptions

	Outcome	Estimate	Forecasts		Projection
	2010-11	2011-12	2012-13	2013-14	2014-15
Gross product	0.2	4	4	3.75	4.5
Unemployment rate	5.5	5.5	6	5.75	5.5
Inflation[1]	3.3	1.9	2.75	2.75	2.75
Wage Price Index	3.9	3.7	3.25	3.5	3.5

Note:

1 Includes a 0.75 of a percentage point contribution from the carbon tax in 2012-13.

Unitywater's EBA wage increase of 3.8 percent in 2012/13 is in line with the wage rate increase assumption for 2011/12 built into the Queensland Government's current budget estimates, although higher than the 3.25 percent forecast for 2012/13. The EBA allows for an identical increase (maximum of 3.8 percent or $40 a week) to apply from 1 July 2013.

However, Halcrow notes that the EBA is due to expire on 30 June 2014 and recommends that Unitywater adopt Queensland Treasury forecasts for subsequent years. Treasury's forecast change in the wage rate index provides for a margin of a 0.75 of a percentage point above the movement in the CPI (refer **Table 5.17**).

Escalation Rates for Other (Non-Labour) Items:

Unitywater has adopted annual price escalation rates of 3.25 percent in 2012/13, 3.5 percent in 2013/14 and 3.4 percent in 2014/15 per annum for all non-labour items with the exception of bulk water and electricity. This rate of increase is more than Queensland Treasury's forecasts of movements in the CPI, ie. 2.75 percent per annum in each of years 2012/13, 2013/14 and 2014/15.

[71] Queensland Treasury and Trade, *Queensland Economic Review*, September 2012, page 1.

[72] Queensland Government, *Budget Strategy and Outlook; 2012-13*, page 34.

The Reserve Bank in its November 2012 Statement on Monetary Policy (page 67) is forecasting CPI inflation of 3.25 percent in the year ending June 2013 before falling back to between 2-3 percent. It is noted, however, that this advice was not available at the time that Unitywater's estimates were being prepared, in which case they should reflect the information available at the time.

Halcrow notes that Unitywater's forecast price indexation is up to 1 percent higher than Queensland Urban Utilities' forecast 2.5 percent per annum rate of escalation for the same items.

Prices for some non-labour items have shown significant volatility in recent years. For example, the movement in chemical costs can be assessed on the basis of Producer Price Indexes published by the Australian Bureau of Statistics;[73] the movement based on three different indexes is shown in **Table 5.18**.

Table 5.18: Movement in Chemical Cost based on ABS Indexes

Escalation from:	Basic chemical and chemical products (A3343980X)	Basic chemicals (A2309150F)	Other basic chemical products (A3343982C)
2009 to 2010	-26.4%	-40.7%	-23.4%
2010 to 2011	3.5%	7.2%	4.1%
2011 to 2012	7.8%	24.5%	8.1%

Note: Based on June figures.

Given the latest Reserve Bank forecast it is considered reasonable to adopt a price escalation rate of 3.25 percent for all non-bulk water and electricity items in 2012/13. However, it is appropriate to reduce the assumed price escalation rates in 2013/14 and 2014/15 to 2.5 percent a year. This will ensure consistency with Queensland Urban Utilities, particularly in light of the slowing economic conditions and given Queensland Treasury's and the latest Reserve Bank forecasts of general inflation.

5.2.6.4 Efficiencies adopted in 2012/13

As outlined in **Section 5.2.7**, in its 2010/11 Interim Price Monitoring Report[74] the QCA set efficiency targets representing reductions of 1.62 percent and 3.70 percent respectively off Unitywater's operating expenditure forecasts for 2011/12 and 2012/13 respectively.

Unitywater has adopted the following initiatives, amongst others, to achieve efficiency savings. In some cases there are trade-offs between capital and operating expenditure that may result in operating expenditure increases:

[73] Australian Bureau of Statistics, *Catalogue 6427.0 – Producer Price Indexes, Australia, Sep 2012*, Series A3343980X – Basic chemical and chemical products; Series A2309150F – Basic chemicals; and Series A3343982C – Other basic chemical products, June figures.

[74] QCA, *Final Report; SEQ Interim Price Monitoring for 2010/11; Part B – Detailed Assessment*, March 2011.

- Diverted sewage from Brendale to Luggage Point, a Queensland Urban Utilities (QUU) plant, enabling deferral of augmentation of Brendale and achieving savings of $25.7 million. QUU will be recompensed for use of their plant.
- Intensified the identification and removal of illegal stormwater connections. This will delay the need for augmentation of the wastewater network and improve environmental outcomes.
- Rationalised its property portfolio leading to rent reductions, improved customer service and integration of work practices and support functions.
- Introduced new information management systems (eg. GIS, SCADA) to replace legacy councils' systems enabling the adoption of uniform area wide systems and procedures combined with improved operational efficiency.
- Established consolidated, central call system.
- Improved labour productivity by:
  - Staggering workforce start and finish times reducing call outs and better matching availability with work volumes;
  - Introducing afternoon shift for field roles leading to better matching of workforce availability with work volumes;
  - Having field service crews start/finish shifts on site rather than at depots;
  - Adopting pay parity across workforce (same work/same pay); and
  - Calling for voluntary redundancies leading to a reduction of 45 in staff numbers (36 engaged in operational activities) without detriment to service levels (saving of $3.4 million).
- Implemented new customer service and billing system.

Halcrow notes the expectation that the introduction of new business systems (for which capital expenditure is forecast to be incurred during 2012/13) will lead to operational efficiencies following implementation. These systems include new information systems (GIS and SCADA) and a new asset management system.[75] Anticipated efficiency gains include (for example) some $4.4 million per annum arising from the GIS Establishment project. Full implementation of the Asset Management System should enable Unitywater to achieve a balanced maintenance regime that comprises optimised levels of proactive and reactive maintenance based on a clear understating of asset condition and performance; this should also result in overall efficiency gains.

Halcrow further notes that, whilst it would expect to see the resultant efficiencies beginning to be realised from 2013/14 onwards, with regulated operating expenditure (excluding bulk water costs) forecast to increase at rates of 5 percent and 4.5 percent in 2013/14 and 2014/15 respectively, its does not appear that Unitywater has allowed for such gains.

[75] Details of a selection of the proposed new business systems are outlined as part of Halcrow's review of Capital Expenditure (refer **Section 6** and **Appendix A**); these include the GIS Establishment, Communications System Upgrade and Asset Management System projects.

5.2.6.5 Unitywater Service Standards

Unitywater reports against a limited number of quantified service targets[76] (eg. water quality, dry weather sewage overflows) in its annual report. These are not currently regulated by the QCA. In 2011/12 it met these targets.

Unitywater's service standards are very similar to those of Queensland Urban Utilities (QUU), as shown in **Table 5.19**. It does not report against them in its annual report and does not show actual outcomes in its Interim Price Monitoring Submission.

Table 5.19: Comparison of Unitywater and QUU Service Standards

Indicator	Unitywater Standard	QUU Standard
Compliance ADWG	≥98%	
Complaints	(ISO 10002-2006) <10	≤8/1000 properties
Incidents	(ISO 10002-2006)	≤10/1000 properties
Pressure	≥ 210kPa	≥210kPa Urban areas
Volume	≥ 23 L/min	≥25 L/min
Calls answered	≥ 80% within 30 sec	≥80% within 30 sec
Time to install	100% within 15 working days	≥90% within 15 working days
Unplanned water interruptions	≤ 15/1000 properties a year	≤ 100/1000 properties a year
Restoration of supply	≥ 90% unplanned interruptions ≤ 5 hours	≥90% unplanned interruptions ≤ 5 hours
Urgent water	100% ≤1 hr	100% ≤1 hr
Urgent sewer	100% ≤1 hr	100% ≤1 hr
Non-urgent water		100% ≤24 hr
Non-urgent sewerage		100% ≤24 hr
Notification planned interruptions	48hrs notice given	48hrs notice given

Unitywater has indicated that there are no significant changes proposed to the existing set of standards and associated targets in 2012/13.[77] It can therefore be concluded that increased service standards are not driving 2012/13 expenditure.

The *Water and Wastewater Network and Services Plan* (Netserv Plan) is due to come into operation from 1 July 2013.[78] It will include specific plans for every area of Unitywater's operations and is intended to become the "*primary tool for strategic planning, compliance and providing a process for continual development*".

Unitywater's submission does not explicitly link its 2012/13 expenditure to the proposed Netserv Plan. This can be expected once the plan becomes operational.

[76] Unitywater Annual Report 2011/12, page 20.

[77] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[78] Unitywater Annual Report 2011/12, page 25.

5.2.7 Achievement of Efficiency Targets

In its 2010/11 Interim Price Monitoring Report,[79] the QCA set Unitywater efficiency targets of $6.33 million in 2011/12 and $9.78 million in 2012/13, representing reductions of 1.62 percent and 3.70 percent respectively off Unitywater's forecasts for those financial years. This assessment resulted in the QCA setting efficient levels of operating expenditure at $247.67 million for 2011/12 and $267.73 million (including bulk water costs in both cases). On this basis, an incremental efficiency gain in the order of 2 percent is to be achieved in 2012/13.

Halcrow's assessment of Unitywater's performance in achieving the efficiency targets set by the QCA is summarised in **Table 5.20**. This analysis indicates that, on the basis of information presented in its 2012/13 Interim Price Monitoring Submission, Unitywater will achieve the nominated targets in both 2011/12 and 2012/13. Details of actual expenditure incurred in 2011/12 are not available to this review and have not been assessed.

Table 5.20: Halcrow Assessment of Efficiency Performance ($million nominal)

Item	2011/12	2012/13
	Based on 2012/13 Submission#	Based on 2012/13 Submission#
Unitywater reported Regulated Operating Expenditure	233.67	258.52
less Bulk Water	-92.49	-114.94
Unitywater reported Regulated Operating Expenditure (excl Bulk Water)	141.18	143.58
QCA defined target for efficient operating expenditure	247.67	267.73
Less Bulk Water allowance	-94.37	-113.00
QCA defined target (excl Bulk Water)	153.30	154.73
Variance (actual less target)	-12.12	-11.15
Target achievement	✓	✓

Note:

\# *Unitywater's 2012/13 Interim Price Monitoring Submission.*

5.2.8 Comparisons with Past Forecasts

Table 5.21 highlights the extent to which Unitywater has revised its forecasts of regulated operating expenditure for 2012/13 (-$2.87 million or -1.1 percent) and 2013/14 (+$12.33 million or +4.4 percent) from its 2011/12 Interim Price Monitoring Submission.

If bulk water costs are excluded, the adjustments result in a reduction of $17.07 million (or -10.6 percent) for 2012/13 and a further reduction of $9.75 million (or -6.1 percent) for 2013/14.

[79] QCA, *Final Report; SEQ Interim Price Monitoring for 2010/11; Part B – Detailed Assessment*, March 2011, page 219.

Excluding bulk water, Unitywater forecasts the 2011/12 operating expenditure to be $10.96 million or 7.2 percent less than in last year's submission; lower employee and contractor expenses account for the majority of the reduction, whilst corporate costs and miscellaneous expenses marginally increase. This reduction is largely offset by the increase in bulk water costs of $8.76 million.

Lower employee and contractor expenses than previously forecast also account for significant reductions in non bulk water regulated operating expenditure in 2012/13 and 2013/14. Similar to 2011/12 substantially higher bulk water costs largely offset, or more than offset, these reductions.

The 2012/13 forecasts for electricity, other materials and services, and corporate costs are also higher than forecast in 2011/12, but have less impact than bulk water.

Changes in cost allocation are one factor behind the increase in Other Materials and Services and part of the reduction in Contractor Expenses. Another factor in the reduction in Contractor Expenses between the 2011/12 and 2012/13 forecasts is a change in capitalisation policy.[80]

Expenditure in respect of Employee Expenses, Electricity, Corporate Costs and Other Materials and Services is discussed in more detail in **Section 5.3**.

[80] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

Table 5.21: Comparison with Previous Expenditure Forecasts ($million)

Cost Centre	2011/12			2012/13			2013/14		
	1	2	3	4	5	6	7	8	9
	2011/12 Submission	2012/13 Submission	Difference (Col. 2-1)	2011/12 Submission	2012/13 Submission	Difference (Col. 5-4)	2011/12 Submission	2012/13 Submission	Difference (Col. 8-7)
Employee costs	58.92	51.22	-7.70	60.23	50.44	-9.79	60.83	53.12	-7.71
Contractor Expenses	18.63	16.85	-1.77	26.46	13.30	-13.16	27.59	13.91	-13.68
Electricity	6.86	6.35	-0.51	7.49	8.64	1.15	8.17	9.80	1.63
Other Materials & Services	19.45	15.77	-3.68	19.62	22.54	2.92	19.22	23.75	4.53
Corporate Costs	31.97	33.69	1.72	31.93	32.25	0.32	31.22	32.98	1.76
Miscellaneous	16.31	17.30	0.99	14.92	16.41	1.49	13.50	17.22	3.72
Total Regulated Operating Expenditure (excluding Bulk Water)	152.14	141.18	-10.96	160.65	143.58	-17.07	160.54	150.78	-9.75
Bulk Water	83.73	92.49	8.76	100.74	114.94	14.20	119.12	141.20	22.08
Total Regulated Operating Expenditure	235.87	233.67	-2.19	261.39	258.52	-2.87	279.66	291.98	12.33
Non-regulated Operating Expenditure	2.61	7.01	4.40	2.73	4.57	1.84	2.82	4.83	2.00
Total Operating Expenditure	238.48	240.68	2.20	264.12	263.09	-1.03	282.48	296.81	14.33

5.2.9 Efficiency of the Base Forecast

The efficiency of Unitywater's base forecast is considered with regard to:

- Its operating systems and processes; and
- Comparisons with other water utilities.

A discussion of the effectiveness of Unitywater's management systems is presented in **Section 4** and a benchmarking analysis is presented in **Section 5.5**. Whilst these assessments are discussed in more details in the respective sections, Halcrow found that:

- Unitywater's management systems and asset management processes are generally considered to be robust in principle, however, are still subject to ongoing development. For example, detailed asset management plans (by asset type) are yet to be developed and fully implemented; detailed maintenance planning, whilst currently based on past practices, is awaiting full development and implementation of the Consolidated Asset Management System to enable optimisation. Full development and implementation of the system tools that support Unitywater's asset management practices will lead to greater operational efficiencies.
- The benchmarking assessment indicated that, from a customers perspective, unit costs for both water service provision and in total are significantly greater that Unitywater's interstate comparators, although they compare favourably with Queensland Urban Utilities' unit costs. The impact of increasing costs in providing water services is reflected in all indicators assessed; it is also reflected in the more detailed analysis of expenditure presented in **Section 5.3**. When compared to interstate utilities, these higher costs per customer are in part reflective of its greater per customer asset base (eg. length of pipeline, number of pumping stations) which can be explained by the lower density of customers (ie. number of customers per square kilometre serviced).

On this basis, Halcrow has some concerns in respect of the level of efficiency reflected by the adopted baseline forecast. It does, however, recognise that the extensive organisational change that is currently (still) being implemented subsequent to the creation of Unitywater makes it difficult to assess what the efficient level of baseline expenditure should be.

5.3 Detailed Assessment of Forecast Expenditure

5.3.1 Overview

As part of the review of Unitywater's proposed operating expenditure, Halcrow undertook a detailed assessment of a sample comprising four (4) expenditure components; these were:

- Employee Expenses;
- Electricity Costs;
- Corporate Costs; and
- Other Materials and Services.

As shown in **Table 5.7**, these expenditure components comprise almost 80 percent of Unitywater's operating expenditure (excluding bulk water costs) in 2012/13, and a similar proportion in future years having increased marginally from 2011/12.

Halcrow's detailed assessment of each of the selected expenditure components is set out in the following sections.

5.3.2 Employee Expenses

5.3.2.1 Introduction

As shown in **Table 5.22**, employee expenses are estimated to be $50.4 million in 2012/13. This is a reduction of 1.5 percent from 2011/12 and represents 35.1 percent of total operating expenses excluding the cost of bulk water.

Table 5.22:[81] Unitywater Employee Expenses – Summary Assessment

	2010/11	2011/12	2012/13	2013/14	2014/15
Total Employee Expenses ($'000 nominal)	49,970.9	51,220.0	50,436.9	53,122.3	55,506.3
Proportion of Total Regulated Operating Expenditure (excluding Bulk Water)	35.4%	36.3%	35.1%	35.2%	35.2%
Year-on-Year Percentage Change	-	2.5%	-1.5%	5.3%	4.5%

Employee expenses need to be reviewed in conjunction with changes in expenditure incurred in respect of Contractor expenses. These are estimated to be $13.3 million in 2012/13, a reduction of 21 percent from the previous year; this equates to approximately 9 percent of total regulated operating expenses (excluding bulk water). Unitywater has, however, advised that $3.6 million of expenditure previously classified as Contractor Expenses has been transferred to Other Material and Services.[82]

Unitywater has undertaken the following actions in respect of/that impact on its forecast employee expenses:

- adopted a zero based budget methodology for estimating employee expenses;[83]
- undertaken a round of voluntary redundancies resulting in labour savings of $3.4 million and a reduction of 45 employees for the 2012/13 financial year;[84] and

[81] Derived from Unitywater's Submission to QCA, Table 5.11.1, dated 31 August 2012

[82] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[83] Unitywater's submission to QCA, p22, 31 August 2012.

[84] Unitywater's submission to QCA, p91, 31 August 2012. Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012) indicates that 36 of the 45 employees impact operating expenditure, with a resulting $2.5 million reduction.

- applied a wage escalation rate of 3.8 percent[85] (as per the EBA) in addition to an allowance of 0.5% for salary progression (ie. annual increment advancement) for existing employees.[86]

It is also noted that forecast expenditure in respect of employee expenses excludes any allowance for employee expenses incurred in providing Corporate Services. These costs, which are separately accounted for, are discussed in **Section 5.3.4**.

5.3.2.2 Employee Numbers

A summary of aggregate employee numbers (FTEs) by Division is shown in **Table 5.23**.

Table 5.23:[87] Summary of Employee Numbers

Division	FTE 30/6/12	FTE 30/6/13	HC 30/6/12	HC 30/6/13
Office of the CEO	5.0	5.0	5.0	5.0
Business Support Services	93.0	91.0	93.0	91.0
Retail	77.1	75.1	92.0	90.0
Infrastructure Services	640.5	602.0	643.0	604.0
ICT	48.0	45.0	48.0	45.0
Workforce Capability & Change	31.2	30.2	32.0	31.0
Finance & Regulatory Services	41.0	41.0	41.0	41.0
Business Initiatives	3.0	3.0	3.0	3.0
Corporate Finance	42.4	41.4	44.0	43.0
Total	981.2	933.7	1001.0	953.0

Note: HC indicates establishment numbers.

As previously noted, 45 positions were made redundant during 2011/12; of these, 36 positions related to operating expenditure whilst the remaining 9 positions were associated with capital expenditure. The source of the redundant positions and the associated cost adjustments are as shown in **Table 5.24**.

[85] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[86] Unity Water's submission to QCA, 31 August 2012, page 97.

[87] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

Table 5.24:[88] Analysis of Redundant Positions

Division	Roles		Labour (S000's)		
	Opex	Capex	Opex	Capex	Total
Business Support Services	1	-	108	-	108
Finance & Regulatory Services	1	-	116	-	116
ICT	3	1	343	92	435
Infrastructure Services	18	8	971	738	1,709
Paramount (Business Initiatives)	1	-	82	-	82
Retail	9	-	675	-	675
Workforce Capability & Change	3	-	249	-	249
Total	36	9	2,544	830	3,374

The reduction in staff numbers is principally from the Infrastructure Services Division. Unitywater advises, as follows, that these reductions will not adversely impact service levels:[89]

"*A rigorous process was adhered to in determining those positions no longer considered necessary to support and/or further Unitywater's strategic objectives. This involved considering:*

- *the nature of the position;*
- *the accountabilities associated with the position;*
- *the tasks undertaken within the role;*
- *the potential risks (including the potential for service level impairment) associated with removal of the position; and*
- *whether duplication across roles and positions existed.*

Given the robust nature of the process that underpinned the identification of redundant positions, and in particular the detailed consideration given to service level impairment potential, it is not considered that the redundancies have resulted, or will result, in any diminution of Unitywater's service levels."

5.3.2.3 Employee Expenses by service

Table 5.25 shows a breakdown of employee expenses by service whilst **Table 5.26** shows the year-on-year movement in expenditure in each case.

[88] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[89] Ibid.

Table 5.25:[90] Unitywater Employee Expenses ($'000 nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	15,616.8	17,945.0	17,764.1	18,270.4	18,905.9
Other Core Water Services	2,970.3	3,328.9	4,043.9	4,215.2	4,396.1
Wastewater	29,538.5	27,731.7	26,708.5	28,596.5	30,058.7
Trade Waste	1,183.2	1,160.9	1,207.8	1,288.0	1,353.6
Other Core Wastewater Services	662.1	1,053.5	712.6	752.3	792.0
Total Employee Expenses	49,970.9	51,220.0	50,436.9	53,122.3	55,506.3

Table 5.26: Unitywater Employee Expenses – Year-on-Year Percentage Change (based on $nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	-	14.9%	-1.0%	2.9%	3.5%
Other Core Water Services		12.1%	21.5%	4.2%	4.3%
Wastewater	-	-6.1%	-3.7%	7.1%	5.1%
Trade Waste	-	-1.9%	4.0%	6.6%	5.1%
Other Core Wastewater Services		59.1%	-32.4%	5.6%	5.3%
Total Employee Expenses	-	2.5%	-1.5%	5.3%	4.5%

The employee expenses incurred in providing wastewater and trade waste services comprise 56.8 percent of the total regulated employee expenses in 2012/13; the cost of providing water services makes up the remaining 43.2 percent. These proportions remain generally consistent over the five (5) year review period.

Employee expenses incurred in providing water services (including other core water services) increase by 2.5 percent in 2012/13, whilst those incurred in providing wastewater and trade waste services reduce by 4.4 percent. Total movement over the four (4) years 2010/11 to 2014/15 is forecast to be approximately 25 percent for water services and less than 3 percent for wastewater and trade waste services.

5.3.2.4 Employee Expenses by Region

There is a substantial difference in the increases in employee expenses shown for the individual regions (Moreton Bay and the Sunshine Coast), as shown in **Table 5.27** and **Table 5.28**.

Employee expenses incurred in providing water and wastewater services to Moreton Bay reduce by 5.9 percent while the equivalent figure for the Sunshine Coast increases by 3.9 percent. This contrast is particularly evident for water services where associated employee expenses reduce by 9.1 percent for Moreton Bay but increase by 9.9 percent for the Sunshine Coast.

[90] Derived from Unitywater's Submission to QCA, Table 5.11.1, dated 31 August 2012.

No explanantion for this variation is evident from the information provided other than the generic comment[91] "*Differences … may be attributable to geography, logistics, storage, volume, technology, customer density and contracting strategy, to name a few*".

There is only a marginal variation in the expected growth rates between the two regions. The predicted population growth for Moreton Bay is 2.0 percent per annum and 2.2 percent a year for the Sunshine Coast.[92]

Table 5.27: Employee Expenses by Region ($'000 nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	8,500.1	10,283.9	9,343.0	9,624.6	9,871.2
	Other Core Water	1,668.0	1,881.8	2,290.3	2,390.6	2,488.7
	Wastewater	16,743.5	14,925.1	14,044.3	15,127.3	15,725.3
	Trade Waste	701.6	643.5	619.1	661.3	692.3
	Other Core Wastewater	350.2	626.9	392.2	414.1	436.0
	Total	*27,963.3*	*28,361.1*	*26,688.9*	*28,217.9*	*29,213.3*
Sunshine Coast	Water	7,116.7	7,661.1	8,421.1	8,645.8	9,034.7
	Other Core Water	1,302.3	1,447.2	1,753.6	1,824.6	1,907.5
	Wastewater	12,795.0	12,806.6	12,664.1	13,469.2	14,333.4
	Trade Waste	481.6	517.4	588.8	626.7	661.3
	Other Core Wastewater	312.0	426.6	320.4	338.2	356.1
	Total	*22,007.7*	*22,858.9*	*23,748.0*	*24,904.5*	*26,293.0*
Total	Water	15,616.8	17,945.0	17,764.1	18,270.4	18,905.9
	Other Core Water	2,970.3	3,328.9	4,043.9	4,215.2	4,396.1
	Wastewater	29,538.5	27,731.7	26,708.5	28,596.5	30,058.7
	Trade Waste	1,183.2	1,160.9	1,207.8	1,288.0	1,353.6
	Other Core Wastewater	662.1	1,053.5	712.6	752.3	792.0
	Total	49,970.9	51,220.0	50,436.9	53,122.3	55,506.3

[91] Unitywater submission to QCA, dated August 2012, page 96.

[92] Unitywater submission to QCA, dated August 2012, page 94.

Table 5.28: Employee Expenses – Year-on-Year Percentage Change by Region (based on $'000 nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	-	21.0%	-9.1%	3.0%	2.6%
	Other Core Water	-	12.8%	21.7%	4.4%	4.1%
	Wastewater	-	-10.9%	-5.9%	7.7%	4.0%
	Trade Waste	-	-8.3%	-3.8%	6.8%	4.7%
	Other Core Wastewater	-	79.0%	-37.4%	5.6%	5.3%
	Total	-	*1.4%*	*-5.9%*	*5.7%*	*3.5%*
Sunshine Coast	Water	-	7.6%	9.9%	2.7%	4.5%
	Other Core Water	-	11.1%	21.2%	4.0%	4.5%
	Wastewater	-	0.1%	-1.1%	6.4%	6.4%
	Trade Waste	-	7.4%	13.8%	6.4%	5.5%
	Other Core Wastewater	-	36.8%	-24.9%	5.6%	5.3%
	Total	-	*3.9%*	*3.9%*	*4.9%*	*5.6%*
Total	Water	-	14.9%	-1.0%	2.9%	3.5%
	Other Core Water	-	12.1%	21.5%	4.2%	4.3%
	Wastewater	-	-6.1%	-3.7%	7.1%	5.1%
	Trade Waste	-	-1.9%	4.0%	6.6%	5.1%
	Other Core Wastewater	-	59.1%	-32.4%	5.6%	5.3%
	Total	-	2.5%	-1.5%	5.3%	4.5%

5.3.2.5 Unit costs

Table 5.29 shows the change in employee expenses incurred in providing services relative to both the volume of water purchased by Unitywater and the number of wastewater serviced properties (as an indicator of the change in customer numbers). This reveals that:

- Employee expenses (per unit of water purchased) reduce by 7.6 percent to $0.83 per kilolitre in 2012/13; and
- Employee expenses (per number of wastewater properties) reduce by 3.8 percent to $170.86 per property in 2012/13.

For comparative purposes, it is noted that the equivalent unit rates for Queensland Urban Utilities are of a similar order (approximately 12 percent variance), as follows:

- Employee expenses per unit of water purchased are forecast to increase by 10.9 percent to $0.74 per kilolitre in 2012/13; and
- Employee expenses per number of wastewater properties are forecast to increase by 13.0 percent to $193.30 per property.

It is, however, noted that Unitywater's unit rate employee expenses are decreasing whilst those of QUU are increasing.

Table 5.29: Analysis of Expenditure Variances – Total Employee Expenses

	2010/11	2011/12	2012/13	2013/14	2014/15
Total Employee Expenses	49,970.9	51,220.0	50,436.9	53,122.3	55,506.3
ML purchases	46,736	56,695	60,448	64,550	67,303
c/kL	1.07	0.90	0.83	0.82	0.82
% change	64.4%	-15.5%	-7.6%	-1.4%	0.2%
Properties Serviced	285,532	288,404	295,188	302,130	309,236
$/property	175.01	177.60	170.86	175.83	179.49
% change	42.1%	1.5%	-3.8%	2.9%	2.1%

Source Worksheet 5.4.1; Interim Price Monitoring Submission 2012/13 – Data Template

A similar analysis, but based on employee expenses incurred in providing water supply services (excluding the cost of bulk water) and wastewater services respectively, is presented in **Table 5.30**. This shows reducing unit rates of expenditure, with specific decreases in 2012/13 as follows:

- Water related employee expenses per unit of water purchased decrease by 7.2 percent to $0.29 per kilolitre; and
- Wastewater related employee expenses per number of wastewater properties decreases by 5.9 percent to $90.48 per property.

Table 5.30: Analysis of Employee Expenditure Variances –Service Related

	2010/11	2011/12	2012/13	2013/14	2014/15
Water Expenditure	15,616.8	17,945.0	17,764.1	18,270.4	18,905.9
Drinking Water Purchases (ML)	46,736	56,695	60,448	64,550	67,303
$/kL	0.33	0.32	0.29	0.28	0.28
% change	36.2%	-5.3%	-7.2%	-3.7%	-0.8%
Wastewater Expenditure	29,538.5	27,731.7	26,708.5	28,596.5	30,058.7
Wastewater Properties Serviced (No)	285,532	288,404	295,188	302,130	309,236
$/property	103.45	96.16	90.48	94.65	97.20
% change	46.6%	-7.1%	-5.9%	4.6%	2.7%

Source Worksheet 5.4.1; Interim Price Monitoring Information Return 2012/13 – Data Template

Again for comparative purposes, it is noted that the equivalent unit rates for Queensland Urban Utilities are as follows:

- Water related employee expenses per unit of water purchased are forecast to increase by 21.6 percent to $0.32 per kilolitre in 2012/13; this follows an increase of 4.0 percent in 2011/12; and

- Wastewater related employee expenses per number of wastewater properties are forecast to increase by 5.4 percent to $94.01 per property; this follows a decrease of 18.5 percent in 2011/12.

When assessed on this basis, Unitywater's employee expenses are in the order of 5-10 percent lower than QUU's. It is noted that Unitywater's figures exclude employee expenses incurred in providing Corporate services; it also reports significantly higher Contractor expenses than QUU, which would appear to distort comparison. Further analysis reveals, however, that the majority of QUU's contractor costs (including consultancy fees) are reported under the Other Materials and Services category. In 2012/13, QUU has included some $20.471 million of contractor/consultancy fees under Other Materials and Services, which compares to Unitywater's 2011/12 Contractor expenses of $16.854 million (ie. prior to reclassifying some of its Contractor expenses to Other Materials and Services Expenses in 2012/13).

5.3.2.6 Actions taken to improve productivity

Unitywater has taken the following actions to improve labour productivity:[93]

- Staggered workforce start and finish times reducing call outs and better matching availability with work volumes;
- Introduced afternoon shift for field roles leading to better matching of workforce availability with work volumes;
- Have field service crews start/finish shifts on site rather than at depots;
- Adopted pay parity across workforce (same work/same pay);
- Called for voluntary redundancies leading to a reduction of 45 in staff numbers without detriment to service levels (saving of $3.4 million); and
- Rationalised property holdings including service centres and stores.

5.3.2.7 Opportunities for additional labour efficiencies

Unitywater has introduced extensive reform to its planning, maintenance and asset management practices. It took action earlier than Queensland Urban Utilities to stand alone from its constituent councils' systems and has been able to take a more measured approach to the integration and reform process. The separation from the councils is not yet complete and they continue to provide some services under agreement.

Unitywater remains in the implementation stage of Program Paramount[94] and there are still large sums being spent on system and business integration. It was also constrained by Government policy on labour restructuring. These constraints, now lifted, remain in the EBA.

[93] Unitywater submission to QCA, August 2012, page 4.

[94] Unitywater submission to QCA, August 2012, page 17.

Unitywater concedes "*further refinement of staff establishments will be required*" and "*the organisational structure will evolve as Unitywater gains operational experience and management focus*".[95]

These opportunities and the realisation of gains from earlier reform are not explicitly reflected in the forward estimates (ie. in 2013/14 and 2014/15) and further refinement of these figures is expected. The following extract from the business case for Unitywater's Consolidated Asset Management System provides an indication of the potential gains yet to be made in the Field Services Area:[96]

"*"Wrench" time is the time that field crews spend actually "doing the job", as opposed to travel, getting ready to start, etc.*

The following table outlines typical water utility field staff time utilisation where processes and systems are "basic", "improved" and "best in class":

Activity	***Basic***	***Improved***	***Best in Class***
Personal	*5%*	*5%*	*5%*
Break & Lunch	*19%*	*19%*	*19%*
Idle Time	*6%*	*3%*	*0%*
Getting Parts	*17%*	*8%*	*1%*
Getting Tools	*4%*	*2%*	*1%*
Travel Time	*13%*	*10%*	*5%*
Instructions	*6%*	*3%*	*1%*
Wrench Time	*30%*	*50%*	*68%*

This table was provided by CIM, which developed the Visual Planner software that Unitywater will use to help to optimise planning and scheduling of its maintenance as part of the CAMS solution.

Given Unitywater's history of being recently formed from the water businesses of a number of councils, it is anticipated that it is much closer to "basic" than "best in class"".

Other expected efficiencies in Operating expenditure, such as those to be realised following the full implementation of new business systems (refer **Section 5.2.6.4**), will also result in additional labour efficiencies.

5.3.2.8 Prudency and efficiency of Unitywater's 2012/13 employee expenses

Unitywater has taken major initiatives to reform its workforce practices. Despite these reforms, Unitywater is an organisation in transition and current employee expenses are above the level that can be expected once reforms are complete.

Further staff and contractor rationalisation can be expected following the completion of Project Paramount.

[95] Unitywater submission to QCA, August 2012, page 23.

[96] Unitywater, *Consolidated Asset Management System Business Case (Version 2.1)*, 27 March 2012, page 34.

As a minimum, after taking account of the reforms to date, even a move from 'Basic' to 'Improved' field practices could yield productivity gains of approximately 15 percent (1.50/1.30) (based on the table in **Section 5.3.2.7**); this implies further reductions of approximately $3.84 million.[97] Further gains, in the order of 12 percent, could then be expected with a further move to 'Best in Class'.

On the basis of Infrastructure Services staff numbers (which comprise approximately 65 percent of total staff numbers), redundancies have accounted for an effective efficiency gain in the order of 2.5-3.0 percent in 2011/12 (reduction by 18FTE to 640.5FTE), with forecast reductions during 2012/13 accounting for a further 6 percent (640.5FTE to 602FTE).

Anticipated gains as Field Services operations move from 'Basic' to 'Improved' practices amount to approximately 15 percent. Halcrow therefore proposes a reduction equal to a further 5 percent of the Field Services employee budget for 2012/13 ($25.6 million), which amounts to $1.28 million or 2.5 percent of forecast total employee expenses. This does not account for further efficiencies in the Treatment Plants Division which is also expected to be realising gains.

Additional gains, potentially in the order of 5 percent per annum (of relevant budget components), would then be expected as field practices yield further productivity increases over the subsequent 2-3 years.

5.3.3 Electricity Costs

5.3.3.1 Introduction

As shown in **Table 5.22**, Electricity costs are estimated to be $8.6 million in 2012/13. This is an increase of 36.1 percent over the 2011/12 forecast[98] and represents 6 percent of total regulated operating expenses excluding the cost of bulk water.

Table 5.31:[99] Unitywater Electricity Costs – Summary Assessment

	2010/11	2011/12	2012/13	2013/14	2014/15
Total Electricity Costs ($'000 nominal)	6,835.3	6,349.7	8,643.4	9,796.4	11,065.4
Proportion of Total Regulated Operating Expenditure (excluding Bulk Water)	4.8%	4.5%	6.0%	6.5%	7.0%
Year-on-Year Percentage Change	-	-7.1%	36.1%	13.3%	13.0%

[97] Based on Field Services 2012/13 budget of $25.6 million (refer Unitywater spreadsheet *ISD Branch Budgets.xls*).

[98] Unitywater submission to QCA, August 2012, sheet 5.11.1.

[99] Derived from Unitywater's Submission to QCA, Table 5.11.1, dated 31 August 2012.

The actual 2011/12 electricity expense was 11.3 percent higher than the Q2 estimate for 2011/12, reducing the increase of 2012/13 over 2011/12 to 22 percent. Unitywater has not provided an explanation for the 2011/12 overspend.[100]

The following analysis is based on the Q2 estimate. These figures, which were provided in Unitywater's Interim Price Monitoring Submission, are the only figures available to Halcrow that are broken down by service and region.

5.3.3.2 Basis of forecast

Unitywater has indicated that, in preparing its forecast of electricity costs, it has:

- adopted of a zero based budget methodology for estimating electricity expenses;[101] and
- applied the electricity cost index (BRCI) published by the QCA and regional dwelling growth forecasts (PIFU).[102]

The latter point taken from the Unitywater's 2012/13 submission appears to be a copy from the 2011/12 submission. Recent advice from Unitywater states:[103]

- "*Escalation rate set at 19.5% taking into consideration:*
  - *Based on consultation paper from Ecofund Queensland a factor of 10% was used to account for the increase in Carbon Tax related charges. (100% applied)*
  - *Network Charges per advice from Energetics to increase by 18%. (45% weighting applied)*
  - *Retail plus Bulk rate was to increase by 2.5% per ERM. (55% weighting applied)*
- *Flow rates were assessed on a site by site basis and from these a growth factor was applied.*"

This is consistent with the 22 percent increase from actual 2011/12 expenditure to the 2012/13 budget of $8.9 million.

The following table (refer **Figure 5.1**) provided by Unitywater[104] shows the variation from the Q2 forecast for 2011/12 to actual 2011/12 to budget 2012/13. Both water and wastewater pumping are included under Field Services.

The table indicates that the cost of electricity for field services increases by 15 percent between the 2011/12 actual and 2012/13 budget, while the equivalent increase for treatment plants is 29 percent. Note that, as previously noted, actual 2011/12 expenditure exceeds the Q2 forecast by 11.3 percent; more specifically, actual electricity costs for Field Services exceed the forecast by 50 percent whilst those incurred in respect of Treatment Plants are 13.5 percent less than the forecast.

[100] Information presented in the following document appears to show justification for lower than budgeted expenditure in respect of Field Services, which is contrary to the figures provided: Unitywater, *QCA 2012-13 Operating Costs Review; Explanation of how the 2012/13 budget forecast was derived by expenditure category; Electricity*, undated.

[101] Unitywater's submission to QCA, 31 August 2012, page 22.

[102] Unitywater's submission to QCA, 31 August 2012, page 97.

[103] Unitywater, *QCA 2012-13 Operating Costs Review; Explanation of how the 2012/13 budget forecast was derived by expenditure category; Electricity*, undated (attachment to email dated 24 October 2012).

[104] Ibid.

Electricity ISD

Branch	Actuals Full Year 11-12	Budget Full Year 12-13	Variance	Variance %	QCA Q2 Forecast Full Year 11-12	September 2012 YTD	Annualised September 2012-3	Percentage Annualised Spend vs Budget 2012-13
020 - Field Services	$ 3,813,331	$ 4,388,891	$ 575,560	15%	$ 2,533,315	$ 658,701	$ 2,634,804	60%
022 - Technologies	$ 3,838	$ -	-$ 3,838	(100%)	$ -	$ -	$ -	0%
025 - Treatment Plants	$ 3,468,573	$ 4,490,636	$ 1,022,063	29%	$ 4,011,380	$ 1,071,420	$ 4,285,679	95%
Total	**$ 7,285,742**	**$ 8,879,527**	**$ 1,593,785**	**22%**	**$ 6,544,695**	**$ 1,730,121**	**$ 6,920,483**	**78%**

Figure 5.1: Unitywater Electricity Reconciliation

5.3.3.3 Electricity expense by service

Table 5.32 shows a breakdown of electricity expenses by service, whilst **Table 5.33** shows the year-on-year movement in each case.

Table 5.32: Unitywater Electricity Costs ($'000 nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	623.3	499.7	1,047.0	1,186.8	1,340.5
Other Core Water	687.7	582.7	545.0	615.5	695.1
Wastewater	5,493.0	5,231.1	7,013.1	7,951.0	8,981.1
Trade Waste	0.0	0.0	0.1	0.1	0.2
Other Core Wastewater	31.3	36.1	38.1	42.9	48.5
Total Electricity Costs	6,835.3	6,349.7	8,643.4	9,796.4	11,065.4

Table 5.33: Unitywater Electricity Costs – Year-on-Year Percentage Change (based on $nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	-	-19.8%	109.5%	13.4%	12.9%
Other Core Water		-15.3%	-6.5%	12.9%	12.9%
Wastewater	-	-4.8%	34.1%	13.4%	13.0%
Trade Waste	-	-100.0%	-	17.7%	15.7%
Other Core Wastewater		15.4%	5.5%	12.6%	12.9%
Total Electricity Costs	-	-7.1%	36.1%	13.3%	13.0%

Based on Unitywater's Submission, the cost of providing electricity to wastewater and trade waste services comprises 81.5 percent of the total electricity expense in 2012/13.

The cost of providing electricity for water services (including other core water services) increases by 47.1 percent in 2012/13. As a component of this, the electricity cost of providing drinking water services alone increases by 109.5 percent after a reduction of 19.8 percent the previous year.

The combined electricity cost of providing wastewater and trade waste services increases by 33.9 percent in 2012/13; the cost of electricity incurred in providing trade waste services is negligible.

5.3.3.4 Unit Costs (Electricity Expenses) of Service Provision

Table 5.34 shows the change in electricity expenses incurred in providing water services (including other core water services) by unit volume (kilolitre) and similarly the change in the electricity expenses incurred in providing wastewater services per property.

Electricity expenses (per unit of water purchased by Unitywater) incurred in providing water services increase by 96.5 percent in 2012/13. This highlights the fact that the overall increase of 47.1 percent in electricity costs for water services is a combination of increased electricity prices and electricity volumes (associated with higher assumed water consumption per customer, an increase in the number of customers and changes in the volume of non-revenue water).

Wastewater related electricity expenses per customer increase by 31.0 percent, which compares with the increase of 33.9 percent in aggregate wastewater electricity expenses.

Table 5.34: Analysis of Expenditure Variances – Electricity Costs by Service

	2010/11	2011/12	2012/13	2013/14	2014/15
Water Electricity Cost ($'000s)	623.3	499.7	1,047.0	1,186.8	1,340.5
ML purchases	46,736	56,695	60,448	64,550	67,303
$/kL	0.0133	0.0088	0.0173	0.0184	0.0199
% change	35.5%	-33.9%	96.5%	6.2%	8.3%
Wastewater Electricity Cost ($'000s)	5,493.0	5,231.1	7,013.1	7,951.0	8,981.1
Properties Serviced	285,532	288,404	295,188	302,130	309,236
$/property	19.24	18.14	23.76	26.32	29.04
% change	79.5%	-5.7%	31.0%	10.8%	10.4%

Source *Worksheet 5.4.1; Interim Price Monitoring Submission 2012/13 – Data Template*

The differences shown between the water and wastewater increases may be partly explained by the incorrect Q2 estimates for 2011/12 in which the Field Services electricity costs, which include water pumping, were grossly underestimated.

The Unitywater increases of 2012/13 over 2011/12 are much higher than forecast by Queensland Urban Utilities[105] and are from an already high base. The outcomes ($0.0173/kL for water services and $23.76/property for sewerage services) for Unitywater for 2012/13 are 36 percent higher for water and 48 percent higher for

[105] QUU forecasts increases in total electricity expense of 5.5 percent or around 13 percent if the cost of green energy is excluded from the 2011/12 figures.

wastewater than QUU.[106] It is noted, however, that electricity costs are in part affected by the geographical spread of the area being serviced and the infrastructure employed to do so.

5.3.3.5 Electricity Expense by Region

There is significant difference in the movements in electricity expenses incurred in the individual regions (Moreton Bay and Sunshine Coast), as illustrated in **Table 5.35** (which shows actual cost distribution) and **Table 5.36** (which shows year-on-year variations by region and service).

Table 5.35: Electricity Costs by Region ($'000 nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	427.6	333.9	672.8	762.7	861.4
	Other Core Water	634.6	533.2	384.6	434.8	491.1
	Wastewater	2,210.8	2,647.5	3,415.3	3,872.1	4,373.6
	Trade Waste	0.0	0.0	0.1	0.1	0.1
	Other Core Wastewater	13.9	21.8	18.7	21.1	23.8
	Total	*3,286.9*	*3,536.5*	*4,491.4*	*5,090.7*	*5,749.9*
Sunshine Coast	Water	195.7	165.8	374.2	424.1	479.1
	Other Core Water	53.1	49.5	160.4	180.7	204.0
	Wastewater	3,282.2	2,583.6	3,597.9	4,079.0	4,607.6
	Trade Waste	0.0	0.0	0.1	0.1	0.1
	Other Core Wastewater	17.4	14.3	19.4	21.9	24.7
	Total	*3,548.4*	*2,813.1*	*4,151.9*	*4,705.7*	*5,315.5*
Total	Water	623.3	499.7	1,047.0	1,186.8	1,340.5
	Other Core Water	687.7	582.7	545.0	615.5	695.1
	Wastewater	5,493.0	5,231.1	7,013.1	7,951.0	8,981.1
	Trade Waste	0.0	0.0	0.1	0.1	0.2
	Other Core Wastewater	31.3	36.1	38.1	42.9	48.5
	Total	6,835.3	6,349.7	8,643.4	9,796.4	11,065.4

[106] There are doubts over the accuracy in both QUU's and Unitywater's submissions to the QCA of the apportionment of costs between water and wastewater.

Table 5.36: Electricity Costs by Region – Year-on-Year Percentage Change (based on $nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	-	-21.9%	101.5%	13.4%	12.9%
	Other Core Water	-	-16.0%	-27.9%	13.1%	12.9%
	Wastewater	-	19.8%	29.0%	13.4%	13.0%
	Trade Waste	-	-100.0%	-	19.3%	10.6%
	Other Core Wastewater	-	57.3%	-14.4%	12.6%	12.9%
	Total	-	*7.6%*	*27.0%*	*13.3%*	*12.9%*
Sunshine Coast	Water	-	-15.3%	125.7%	13.3%	13.0%
	Other Core Water	-	-6.9%	224.4%	12.6%	12.9%
	Wastewater	-	-21.3%	39.3%	13.4%	13.0%
	Trade Waste	-	-100.0%	-	15.4%	23.0%
	Other Core Wastewater	-	-18.0%	36.0%	12.6%	12.9%
	Total	-	*-20.7%*	*47.6%*	*13.3%*	*13.0%*
Total	Water	-	-19.8%	109.5%	13.4%	12.9%
	Other Core Water	-	-15.3%	-6.5%	12.9%	12.9%
	Wastewater	-	-4.8%	34.1%	13.4%	13.0%
	Trade Waste	-	-100.0%	-	17.7%	15.7%
	Other Core Wastewater	-	15.4%	5.5%	12.6%	12.9%
	Total	-	-7.1%	36.1%	13.3%	13.0%

The cost of electricity to provide water and wastewater services to Moreton Bay increases by 27.0 percent in 2012/13, while the equivalent figure for the Sunshine Coast is 47.6 percent. These differences are reflected in the outcomes for the individual services where the increases for the Sunshine Coast are significantly more than for Moreton Bay.

5.3.3.6 Status of current electricity supply agreements

Unitywater has provided a copy of its current electricity supply agreement that runs from 1 July 2012 to 30 June 2013.[107]

It has also supplied a copy of an independent report[108] on the evaluation of tenders for electricity supply. It is noted that both supplier and term of contract, which was awarded in late May 2012, vary from the recommendation; this has attracted a cost premium of 2.2 percent. Halcrow has not sighted an explanation for the reasons for the departure from the recommendation, but notes the issues associated with the tenders, particularly concerning the carbon tax.

[107] Attachment to Unitywater email dated 24 October 2012.

[108] Energetics, *Unitywater; Electricity RFP – Final Results Report*, 4 May 2012 (embedded attachment to Unitywater email dated 24 October 2012).

It is noted that the independent consultant reported an 18 percent increase in the cost of electricity in the first year of the contract on the basis of the tenders received; this will be marginally (2.2 percent) greater for the arrangements adopted by Unitywater. This reported increase provides some validation for the 19.5 percent increase adopted by Unitywater in preparing its 2012/13 budget.

5.3.3.7 Actions taken by Unitywater to reduce electricity expenses

Unitywater has advised that it is taking steps to reduce electricity expenditures by:[109]

- Procuring electricity through market tendering; and
- Rationalising the number of pump stations.

Nonetheless, it forecasts an increase in electricity consumption at treatment plants undergoing upgrades:[110]

"*Upgrades to Sewage Treatment Plants would contribute to a reasonable increase in Electricity, despite using more efficient technology, due to the additional monitoring and environmental protection equipment required during the upgrade in conjunction with the increased flow rate expected would result in increased electricity usage, eg.:*

- *Kawana.*
- *Caboolture.*
- *Murrumba Downs AWTP – Reduction planned in volume being processed through the AWTP from 4ML to 1ML per day.*"

5.3.3.8 Opportunities for additional electricity savings

Unitywater has not (at the time of writing) provided evidence that it has taken action, similar to Queensland Urban Utilities, to further curtail its electricity costs. Such actions may include:

- Either in-house or through an external service provider verify its monthly accounts for accuracy in billing to ensure:
  - there are no overlaps between bills;
  - the correct electricity charges are applied; and
  - there are no unexplained variations in electricity demand;
  - identify demand spikes and opportunities for improved load management
- Reduced peak demand by pumping drinking water to reservoirs at night (off peak);
- Investigated constructing co-generation plants at its main sewage treatment plants
- Implemented smart-metering to give operators real-time visibility of energy usage to manage demand.
- Conducted a fully energy audit on top treatment sites.

[109] Unitywater submission to QCA, dated August 2012, page 102.

[110] Unitywater, *QCA 2012-13 Operating Costs Review; Explanation of how the 2012/13 budget forecast was derived by expenditure category; Electricity*, undated (attachment to email dated 24 October 2012).

- Upgraded monitoring and control technology to enable automatic system optimisation, or operators to manage processes more effectively thereby reducing costs.

5.3.3.9 Prudency and efficiency of Unitywater's 2012/13 electricity expenses

Unitywater has provided documentation supporting its 2012/13 estimates of electricity expenses. Nonetheless, the reasons for the large variation of the actual results for 2011/12 from previous estimates are unclear. It is noted that the relative level of its electricity expenses and the rate of increase are high compared to those forecast by Queensland Urban Utilities.

The significant (36.1 percent) forecast increase in electricity costs in 2012/13 arises as a combination of a 19.5 percent increase in supply cost and an effective 13.9 percent growth in electricity use.

Unitywater has entered a short term electricity supply contract pending the outcome of the next Federal Election and a decision on the continuation of the carbon tax. Whilst this approach may ultimately impact the costs incurred by Unitywater, the contracted rates will not have directly impacted the 2012/13 forecast as the contract was not awarded until some two months after budget preparation in March 2012. It is, however, noted that the supply cost increase to be incurred under the contract approximates that (19.5 percent) used for budgeting purposes.

Halcrow has sought evidence from Unitywater to demonstrate that it has taken all practicable steps to manage its electricity load, however, such information was not available at the time of writing.

In the absence of a more detailed explanation of the substantial (13.9 percent) increase in the demand for electricity, Halcrow is of the view that the increased allowance should be more closely related to the increase in volume of bulk water supplied (for water associated electricity use) and the increase in the number of properties serviced (for wastewater associated electricity use).

With forecast increases of 8.2 percent in the bulk water demand and 2.4 percent in the number of wastewater serviced properties, Halcrow proposes that the forecast should be reduced by an amount in the order of $0.80 million (approximately 9.4 percent). If some further allowance (say 1 percent in each case) is made for increased electricity consumption as outlined (but not quantified) by Unitywater, a reduction of $0.72 million (8.3 percent) is considered appropriate; this is adopted as Halcrow's recommendation.

5.3.4 Corporate Costs

5.3.4.1 Introduction

As shown in **Table 5.37**, Corporate costs are estimated to be $33.9 million in 2012/13.[111] This is a reduction of 0.3 percent over the 2011/12 forecast and represents 12.9 percent of total operating expenses excluding the cost of bulk water.

Table 5.37:[112]Unitywater Corporate Costs – Summary Assessment

	2010/11	2011/12	2012/13	2013/14	2014/15
Total Corporate Costs ($'000 nominal)	35,194.7	33,690.6	32,245.1	32,978.5	33,629.8
Proportion of Total Operating Expenditure (excluding Bulk Water)	24.9%	23.9%	22.5%	21.9%	21.3%
Year-on-Year Percentage Change	-	-4.3%	-4.3%	2.3%	2.0%

It is noted that Unitywater changed its capitalisation policy in 2011/12, increasing the level of corporate support costs that were capitalised from $10 million to $21 million.[113] This is not reflected in the variation in expensed Corporate Costs between 2010/11 and 2011/12 shown in **Table 5.37**. Unitywater has provided the following explanation for this:[114]

"*There are a number of reasons why a large reduction in corporate costs did not transpire in 2011/12. These can broadly be summarised as follows:*

- *2011/12 forecast FTEs not at full capacity;*
- *Large increases in data costs were experienced as Unitywater scaled up its operations to full capacity;*
- *Movement to quarterly billing necessitating additional FTE support; and*
- *Shift of Voluntary Redundancy expenses to corporate costs (note: 39 positions still in Unitywater numbers to come out).*"

5.3.4.2 Basis of forecast

In estimating the 2012/13 figure for Corporate Costs Unitywater has:

- adopted a zero based budgeting approach;[115] and
- applied an escalation rate of 3.25 percent (including carbon tax margin of 0.75 percent) with no growth.[116]

[111] Halcrow notes that Unitywater reports Corporate Costs of $38.1 million for 2012/13 in table 36, page 103 of its Interim Price Monitoring Submission and $33.9 million in table 30, page 94 of the Submission. The analysis presented in this report is based on information presented in the Submission Data Template, which shows a figure of $33.9 million.

[112] Derived from Unitywater's Submission to QCA, Table 5.11.1, dated 31 August 2012

[113] Discussions with Unity Water 5 October 2012. Unitywater submission to QCA, dated August 2012, page 92.

[114] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[115] Unitywater's submission to QCA, 31 August 2012, page 22.

5.3.4.3 Corporate costs by service

Table 5.32 shows a breakdown of corporate costs by service, whilst **Table 5.33** shows the year-on-year movement in each case.

Table 5.38: Unitywater Corporate Costs ($'000 nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	13,699.6	13,290.2	12,731.7	13,058.9	13,825.0
Other Core Water	882.2	742.0	795.9	774.9	785.3
Wastewater	20,038.5	19,170.5	18,120.6	18,529.6	18,404.1
Trade Waste	478.6	477.8	448.1	457.0	447.2
Other Core Wastewater	95.8	10.1	148.9	158.0	168.3
Total Corporate Costs	35,194.7	33,690.6	32,245.1	32,978.5	33,629.8

Table 5.39: Unitywater Corporate Costs – Year-on-Year Percentage Change (based on $nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	-	-3.0%	-4.2%	2.6%	5.9%
Other Core Water		-15.9%	7.3%	-2.6%	1.3%
Wastewater	-	-4.3%	-5.5%	2.3%	-0.7%
Trade Waste	-	-0.2%	-6.2%	2.0%	-2.2%
Other Core Wastewater		-89.5%	1381.3%	6.2%	6.5%
Total Corporate Costs	-	-4.3%	-4.3%	2.3%	2.0%

Corporate Costs incurred in providing wastewater and trade waste services comprise 58.0 percent of the total Corporate Costs in 2012/13, whilst the equivalent figure for providing water services is 42.0 percent.

Overall there is 4.3 percent reduction in the Corporate Costs for Unitywater in 2012/13, with reductions in respect of water and wastewater services generally reflecting this change.

5.3.4.4 Unit Costs (Corporate Costs) of Service Provision

Table 5.40 shows the change in total corporate costs incurred in providing services relative to both the volume of water purchased by Unitywater and the number of wastewater serviced properties (as an indicator of the change in customer numbers). This reveals that:

- Total corporate costs (per unit of water purchased) decrease by 10.2 percent to $0.53 per kilolitre in 2012/13; and
- Total corporate costs (per number of wastewater properties) decrease by 6.5 percent to $109.24 per property in 2012/13.

[116] Unity Water's submission to QCA, 31 August 2012 page 97. Discussion with Unitywater 5 October 2012.

- In both cases, the movements are substantially in excess of both general inflation and the EBA driven increase in labour rates.

The difference is again partly explained by the assumed growth in water consumption per customer, but also reflects a reduction in total Corporate costs.

Table 5.40: Analysis of Expenditure Variances – Total Corporate Costs

	2010/11	2011/12	2012/13	2013/14	2014/15
Total Corporate Costs	35,194.7	33,690.6	32,245.1	32,978.5	33,629.8
ML purchases	46,736	56,695	60,448	64,550	67,303
$/kL	0.75	0.59	0.53	0.51	0.50
% change	16.1%	-21.1%	-10.2%	-4.2%	-2.2%
Properties Serviced	285,532	288,404	295,188	302,130	309,236
$/property	123.26	116.82	109.24	109.15	108.75
% change	0.3%	-5.2%	-6.5%	-0.1%	-0.4%

Source *Worksheet 5.4.1; Interim Price Monitoring Submission 2012/13 – Data Template*

A similar analysis, but based on corporate costs incurred in providing water supply services (excluding the cost of bulk water) and wastewater services respectively, is presented in **Table 5.44**. This again shows increases substantially in excess of general inflation, with specific increases in 2012/13 as follows:

- Water related corporate costs per unit of water purchased decrease by 10.1 percent to $0.21 per kilolitre; and
- Wastewater related corporate costs per number of wastewater properties decrease by 7.6 percent to $61.39 per property.

Table 5.41: Analysis Corporate Cost Variances –Service Related

	2010/11	2011/12	2012/13	2013/14	2014/15
Water Expenditure	13,699.6	13,290.2	12,731.7	13,058.9	13,825.0
Drinking Water Purchases (ML)	46,736	56,695	60,448	64,550	67,303
$/kL	0.29	0.23	0.21	0.20	0.21
% change	5.6%	-20.0%	-10.1%	-3.9%	1.5%
Wastewater Expenditure	20,038.5	19,170.5	18,120.6	18,529.6	18,404.1
Wastewater Properties Serviced (No)	285,532	288,404	295,188	302,130	309,236
$/property	70.18	66.47	61.39	61.33	59.51
% change	4.8%	-5.3%	-7.6%	-0.1%	-3.0%

Source *Worksheet 5.4.1; Interim Price Monitoring Information Return 2012/13 – Data Template*

Given that Queensland Urban Utilities has not reported its corporate costs in a manner consistent with Unitywater, it is not possible to compare corporate cost on a unit basis as has been done for other expenditure components.

5.3.4.5 Corporate costs by region

There is significant difference in the movements in the Corporate Costs incurred in the individual regions (Moreton Bay and Sunshine Coast), as illustrated in **Table 5.42** (which shows actual cost distribution) and **Table 5.43** (which shows year-on-year variations by region and service).

Table 5.42: Corporate Costs by Region ($'000 nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	7,199.9	6,669.9	6,642.9	6,820.7	7,146.2
	Other Core Water	464.7	369.9	422.6	412.8	414.3
	Wastewater	10,763.8	9,259.1	9,424.2	9,681.1	9,536.9
	Trade Waste	247.5	238.4	233.2	239.1	231.8
	Other Core Wastewater	55.4	5.0	75.0	79.6	84.7
	Total	*18,731.4*	*16,542.2*	*16,797.9*	*17,233.2*	*17,414.0*
Sunshine Coast	Water	6,499.8	6,620.3	6,088.8	6,238.2	6,678.8
	Other Core Water	417.4	372.1	373.3	362.1	370.9
	Wastewater	9,274.7	9,911.5	8,696.4	8,848.5	8,867.2
	Trade Waste	231.1	239.4	214.9	218.0	215.4
	Other Core Wastewater	40.3	5.0	73.9	78.5	83.6
	Total	*16,463.3*	*17,148.4*	*15,447.3*	*15,745.3*	*16,215.8*
Total	Water	13,699.6	13,290.2	12,731.7	13,058.9	13,825.0
	Other Core Water	882.2	742.0	795.9	774.9	785.3
	Wastewater	20,038.5	19,170.5	18,120.6	18,529.6	18,404.1
	Trade Waste	478.6	477.8	448.1	457.0	447.2
	Other Core Wastewater	95.8	10.1	148.9	158.0	168.3
	Total	35,194.7	33,690.6	32,245.1	32,978.5	33,629.8

Table 5.43: Corporate Costs by Region – Year-on-Year Percentage Change (based on $nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	-	-7.4%	-0.4%	2.7%	4.8%
	Other Core Water	-	-20.4%	14.2%	-2.3%	0.4%
	Wastewater	-	-14.0%	1.8%	2.7%	-1.5%
	Trade Waste	-	-3.7%	-2.2%	2.5%	-3.0%
	Other Core Wastewater	-	-90.9%	1391.7%	6.1%	6.5%
	Total	-	*-11.7%*	*1.5%*	*2.6%*	*1.0%*
Sunshine Coast	Water	-	1.9%	-8.0%	2.5%	7.1%
	Other Core Water	-	-10.8%	0.3%	-3.0%	2.4%
	Wastewater	-	6.9%	-12.3%	1.7%	0.2%
	Trade Waste	-	3.6%	-10.3%	1.4%	-1.2%
	Other Core Wastewater	-	-87.5%	1370.9%	6.2%	6.5%
	Total	-	*4.2%*	*-9.9%*	*1.9%*	*3.0%*
Total	Water	-	-3.0%	-4.2%	2.6%	5.9%
	Other Core Water	-	-15.9%	7.3%	-2.6%	1.3%
	Wastewater	-	-4.3%	-5.5%	2.3%	-0.7%
	Trade Waste	-	-0.2%	-6.2%	2.0%	-2.2%
	Other Core Wastewater	-	-89.5%	1381.3%	6.2%	6.5%
	Total	-	-4.3%	-4.3%	2.3%	2.0%

Corporate Costs incurred in providing services to Moreton Bay increase by 1.5 percent while the equivalent figure for the Sunshine Coast is a reduction of 9.9 percent. The difference is across both water and wastewater.

5.3.4.6 Corporate Costs by Natural Account

Table 5.44 shows the major items making up Corporate Costs.[117] Changes in account descriptions and results make comparisons between years difficult; for example:

- Consolidations credit of $9.12 million in 2012/13, although nothing is recorded in prior years;
- Plant and Fleet moving from a credit of $4.4 million in 2011/12 to a debit of $4.95m in 2012/13; and
- Corporate Finance down $10.54 million in 2012/13.

Other items requiring explanation include:

- Revenue assurance of $1.71 million in 2012/13, nothing in prior years; and
- Risk increasing from $0.49 million in 2011/12 to $2.71 million in 2012/13.

[117] Unity Water Email dated 9 October 2012, titled 'Analysis for Halcrow'.

Table 5.44: Corporate Costs – Major Items ($million nominal)

Cost Item	1	2	3	Variance (Col 3-2)
	Actual 2010/11	Q2 Forecast 2011/12	Budget 2012/13	
Accounting/Admin/Business	6.19	4.82	8.61	3.78
Communications and Marketing	2.32	1.97	1.93	-0.03
Consolidations	-	-	-9.12	-9.12
Corporate Finance	6.07	11.48	0.94	-10.54
ICT	9.04	5.15	4.76	-0.39
Legal	0.77	1.26	1.55	0.29
Office of the CEO	1.23	1.04	1.55	0.52
Plant & Fleet	-2.54	-4.44	4.95	9.38
Procurement	2.17	0.46	0.53	0.07
Property Management	3.31	1.92	2.74	0.82
Regulatory Affairs	1.02	1.14	1.30	0.17
Revenue Assurance	-	-	1.71	1.71
Risk	0.18	0.49	2.71	2.23
Workforce Capability etc	3.55	4.80	5.00	0.20
Total	33.30	30.08	29.16	-0.92

Unitywater has provided the following explanations for these movements in Corporate Costs:[118]

"*A number of reclassifications have occurred between major line items comprising corporate costs. These reclassifications were made subsequent to business commencement yet at a point in time prior to preparation of the 2012/13 budget. The changes were made to better reflect the underlying nature of the transactions being captured and to focus attention on and monitor key corporate cost drivers.*

These reclassifications, while not uncommon in the infant years of any new business, complicate direct comparisons. Explanations for specific line items are as follows:

- *Internal fleet recovery was moved from plant and fleet to consolidations. The variances in consolidations (-$9.12 million) and plant and fleet ($9.38 million) substantially offset each other.*
- *Corporate finance reduction of $10.54 million was primarily and materially due to:*
  - *SLA costs being transferred to ICT ($2.0 million);*
  - *Bad debt write-off in 2011/12 of ($2.0 million);*
  - *Leave revaluation due to declining interest rates in 2011/12 ($2.0 million);*
  - *Voluntary redundancy payouts in 2011/12 ($3.4 million);*
  - *Insurance costs in 2011/12 being transferred to risk ($1.5 million); and*
  - *Transaction fees in 2011/12 being transferred to Revenue Assurance ($1.71 million).*

[118] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

- *Revenue assurance increase of $1.71 million represents the transfer of BPAY and Australia Post transaction fees from corporate finance costs (noted above);*
- *Risk increase of $2.23 due to shift of insurance premiums from corporate finance and reallocation of staffing commitment;*
- *Accounting/Admin/Business increase of $3.78 million driven by the need to adequately staff back office functions and to facilitate the restructuring needed to bring disparate teams together from across the business.*

As the business matures it is anticipated that the need for reclassifications such as these will diminish, thus making the process of direct comparisons easier and more meaningful."

5.3.4.7 Actions taken by Unitywater to improve efficiency

At meetings on 4th and 5th of October, Unitywater outlined the increased scrutiny it applies to projects prior to approval particularly those falling in the Corporate Cost area.

The variations in account classifications, however, make it difficult to assess trends in Corporate Costs and for this reason Halcrow has not attempted a detailed review.

5.3.4.8 Drivers of Variations in Corporate Cost

Corporate expenditure is being held relatively constant at the aggregate level.[119] This disguises the underlying significant increase that occurred in 2011/12 and carried forward to future years, which offset the $10 million reduction in expensed corporate costs flowing from the change in capitalisation policy.

The increases relate to system and organisational change captured in Program Paramount as the organisation transitions from separate Council administered systems to a unified, sustainable organisation with improved management and maintenance regimes.

5.3.4.9 Benchmarking

Comparisons of the corporate costs incurred by different organisations are compromised by how different organisations are structured and what is included in their corporate costs. For example, functions that are centralised in one organisation, such as procurement or stores, may be decentralised in another.

This can be overcome by using common definitions of corporate costs and/or undertaking a detailed functional analysis. In recognition of this, the QCA in the SunWater irrigation price review opted for the latter.[120]

In the absence of such a study for Unitywater, the following analysis is performed at an aggregate level of corporate costs with the above caveats.

[119] That is, ignoring Table 36 page 103 in Unitywater submission. Analysis based on Unitywater Data Template and Table 30, page 94 in submission.

[120] Deloitte, *Queensland Competition Authority;, SunWater; Administration Cost Review Phase 2*, 25 August 0211, page 81; and QCA, *Final Report; SunWater Irrigation Price Review 2012-17; Volume 1*, May 2012, page 300.

The QCA notes[121] that in its 2010/11 Interim Price Monitoring Submission, Unitywater relied upon a NSW Government paper in support of its level of corporate costs:

"*Advice on corporate overheads was sourced from the Council on the Cost and Quality of Government (CCQG), now known as the Performance Improvement Branch, Department of the Premier and Cabinet, New South Wales government. For agencies of greater than 350 full time equivalent employees CCQC have benchmarked corporate overheads at between 10 and 12% of overall operating costs.*"

At 12.5 percent of total regulated operating expenditure (including bulk water), Unitywaater's corporate costs are marginally higher than the range of 10-12 percent. However, this should be discounted in the context of the CCQC report because of the inclusion of bulk water costs. Corporate costs comprise 22.5 percent of regulated operating expenditure if bulk water costs are excluded.

The consultant engaged by the Independent Pricing and Regulatory Tribunal of NSW (IPART) to review Sydney Water Corporation's expenditure for the purpose of determining maximum charges for 2012-2016 concluded:[122]

"*The level of Corporate costs to operational and maintenance costs appears marginally high when compared to a Frontier Company. We consider there are opportunities for further efficiencies.*"

Table 5.45 shows Sydney Water's[123] corporate costs for 2012/13 and compares the level to total operating expenditure excluding bulk water and desalinated water.

An equivalent table is not available for Unitywater as information that could otherwise have been used[124] is inconsistent with the rest of Unitywater's Interim Price Monitoring Submission and Data Template.

Table 5.45: Sydney Water Corporate Costs compared to Total Operating Expenditure

Description	$million	% of total opex
Managing Director	4.0	0.5
Human Resources	15.2	1.7
Finance & Regulation	10.9	1.2
Corporate Services	89.7	10.1
Total Corporate	119.8	13.5
Total Operating Expenditure	887.5	

Note: Total Operating Expenditure excludes the cost of Bulk Water and the cost of desalinated water. The costs of redundancies and finance lease payments are excluded from Sydney Water's Corporate Cost figures to make them more comparable to Unitywater's corporate cost figures.

[121] QCA, *Final Report; SEQ Interim Price Monitoring for 2011-12; Part B – Detailed Assessment*, March 2012, page 345.

[122] WS Atkins/Cardno, *Final Report; Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure*, November 2011, page 88.

[123] WS Atkins/Cardno, *Final Report; Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure*, November 2011, pages 85 and 93. $43.5 million is deducted from Sydney Water's corporate costs for 2012/13 for redundancies and finance lease payments for a water treatment plant and a tunnel.

[124] Unitywater submission to QCA, dated August 2012, Table 36, page 103.

It is assumed for this analysis that Unitywater's 2012/13 Corporate cost figures exclude the redundant employees' wages that were transferred to Corporate costs in 2011/12. That is, they were not employed at the commencement of the 2012/13 year. This reflects their redundancy payments being accounted for in 2011/12.

The figure of 13.5 percent (corporate costs as a percentage of total operating costs) for Sydney Water is consistent with the comment that its corporate costs are marginally high when compared to the CCQG benchmark of 10-12 percent.

Table 5.46 is included for consistency with the 2011/12 QCA review. It shows the ratio of corporate costs to employee numbers (FTEs), customer connections (water) and revenue. Such figures are affected by the relative reliance on contractors compared to internal staff, customer mix and the governance arrangements and price constraints existing in the different jurisdictions.

Table 5.46: Indicative Corporate Cost Ratios

Water Company	Indicator		
	$/FTE	$/customer connection	$/revenue
QUU	52.9	123.8	69.9
Unitywater	38.6	122.1	66.6
Sydney Water	39.5	66.8	53.0
Victorian water retailer/distributor (1)	109.6	80.5	77.0
Victorian water retailer/distributor (2)	89.5	62.5	78.5
Victorian water retailer/distributor (3)	64.7	35.0	43.2

Note: Figures for Queensland Urban Utilities and Unitywater sourced from their respective Interim Price Monitoring Information Return/Submission; figures for Sydney Water sourced from the expenditure review consultant's report;[125] *and figures for Victorian water companies escalated from figures presented in the* QCA's 2011/12 Interim Price Monitoring Report).[126]

The key ratio in **Table 5.46** is the ratio of corporate costs to customer numbers. This shows most clearly the impact of the level of corporate costs on customers' bills. While the ratio for Unitywater is comparable with Queensland Urban Utilities, it is double the figure for most interstate comparators. Halcrow notes that the figures presented in respect of Sydney Water are much lower than shown in the QCA's 2011/12 Interim Price Monitoring Report. They have been adjusted to exclude redundancy provisions and allowances for finance lease payments for a water treatment plant and tunnel; this has been done to enable more 'like for like' comparisons.

[125] WS Atkins/Cardno, *Final Report; Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure*, November 2011.

[126] QCA, *Final Report; SEQ Interim Price Monitoring for 2011-12; Part B - Detailed Assessment*, March 2012, page 99.

5.3.4.10 Prudence and efficiency of Unitywater's 2012/13 Corporate Costs

Unitywater's corporate activities are essential for its sustainable operations and to meet its legal obligations. No activity was identified that was deemed unnecessary and imprudent. There are, however, questions over the efficiency of its corporate activity and whether the current level of corporate costs is necessary for its longer term operations.

Unitywater's corporate costs can be classified as either 'business as usual' or one-off expenditures associated with its transition to a consolidated entity. Taking the 10-12 percent benchmark of the CCQG as a guide, the efficient level of corporate costs for business as usual activity is in the range of $15 million to $17 million. This leaves around $15 million to $17 million accounted for by one-off transition expenditures and/or inefficiencies.

Unitywater has nominated $6.3 million as non-recurrent costs in 2012/13. However, it is likely (although not quantifiable), based on the information provided, that the transition expenditure in 2012/13 exceeds this amount.

While the level of overall Corporate Costs was assessed as being prudent and efficient in the 2011/12 QCA report, it is unclear what account was made for the increase in capitalised Corporate Costs of $10 million and whether the change in accounting policy was evident at that time.

It is Halcrow's judgement after taking into account these various factors, including the inherent difficulties of comparing corporate cost across entities, that 25 percent of the additional expenditure (10 million) offsetting the increased capitalised expense is inefficient. That is, a reduction of $2.5 million, reducing regulated corporate expense to $30 million in 2012/13, is recommended.

5.3.5 Other Materials and Services

5.3.5.1 Introduction

As shown in **Table 5.37**, Other Materials and Services expenses are estimated to be $22.5 million in 2012/13. This is an increase of 43.0 percent over the 2011/12 forecast and represents 15.7 percent of total operating expenses excluding the cost of bulk water.

Table 5.47:[127]Unitywater Other Materials and Services Costs – Summary Assessment

	2010/11	2011/12	2012/13	2013/14	2014/15
Total Other Materials and Services ($'000 nominal)	14,540.1	15,766.2	22,537.9	23,754.7	24,894.4
Proportion of Total Operating Expenditure (excluding Bulk Water)	10.3%	11.2%	15.7%	15.8%	15.8%
Year-on-Year Percentage Change	-	8.4%	43.0%	5.4%	4.8%

[127] Derived from Unitywater's Submission to QCA, Table 5.11.1, dated 31 August 2012.

It is noted that Unitywater's classification of costs used for internal purposes differs from the QCA's information requirements. On the basis of its own classification, Unitywater shows the budgeted materials and services costs for 2012/13 increasing by 18.3 percent over the 2011/12 actual costs.[128]

It is also noted that forecast expenditure in respect of other materials and services excludes any allowance for such expenses incurred in providing Corporate Services. These costs, which are separately accounted, are discussed in **Section 5.3.4**.

5.3.5.2 Basis of forecasts

In preparing its forecast of Other Materials and Services expenditure, Unitywater has:

- used a combination of zero based budgeting and extrapolation from historical outcomes;[129]
- applied an escalation rate to direct expenses of 3.25 percent[130] in addition to an allowance for regional dwelling growth based on PIFU estimates;[131] and
- applied the escalation rate of 3.25 percent to network and retail overheads with no allowance for growth.[132]

5.3.5.3 Other Materials and Services expenditure by service

Table 5.48 shows a breakdown of Other Materials and Services expenses by service, whilst **Table 5.49** shows the year-on-year movement in each case.

Table 5.48: Unitywater Other Materials and Services expenditure ($'000 nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	4,288.0	5,072.5	7,858.0	8,214.9	8,581.0
Other Core Water	1,206.5	1,094.9	1,718.9	1,802.0	1,889.9
Wastewater	8,499.9	8,986.9	12,272.3	13,009.3	13,656.4
Trade Waste	237.0	257.5	291.2	309.7	325.8
Other Core Wastewater	308.7	354.5	397.5	418.9	441.4
Total Other Materials and Services Costs	14,540.1	15,766.2	22,537.9	23,754.7	24,894.4

[128] Unitywater email dated 25 October 2012, document titled 'QCA information materials and services'.

[129] Unity Water's submission to QCA, 31 August 2012, page 22.

[130] Unitywater email dated 25 October 2012, document titled 'QCA information materials and services'.

[131] Unity Water's submission to QCA, 31 August 2012, page 97. Growth estimates vary by region page 45.

[132] Unity Water's submission to QCA, 31 August 2012, page 97.

Table 5.49: Unitywater Other Materials and Services expenditure – Year-on-Year Percentage Change (based on $nominal)

	2010/11	2011/12	2012/13	2013/14	2014/15
Water	-	18.3%	54.9%	4.5%	4.5%
Other Core Water		-9.2%	57.0%	4.8%	4.9%
Wastewater	-	5.7%	36.6%	6.0%	5.0%
Trade Waste	-	8.6%	13.1%	6.3%	5.2%
Other Core Wastewater	-	14.8%	12.1%	5.4%	5.4%
Total Other Materials and Services Costs	-	8.4%	43.0%	5.4%	4.8%

Other materials and services expenses incurred in providing wastewater and trade waste services comprise 57.5 percent of the total other materials and services expenses in 2012/13. The equivalent figure for providing water services is 42.5 percent.

Other materials and services expenses incurred in providing water services (including other core water services) increase by 55.3 percent in 2012/13. Other materials and services expenses incurred in providing wastewater and trade waste services increase by 35.0 percent in 2012/13.

No explanantion for these variations is evident from the information provided other than the generic comment[133] "*Differences … may be attributable to geography, logistics, storage, volume, technology, customer density and contracting stratgey, to name a few*".

5.3.5.4 Unit costs

Table 5.50 shows the change in other materials and services expenses incurred in providing services relative to both the volume of water purchased by QUU and the number of wastewater properties (as an indicator of the change in customer numbers). This reveals that:

- Total other materials and services expenditure (per unit of water purchased) increase by 34.1 percent to $0.37 per kilolitres in 2012/13; and
- Total other materials and services expenditure (per number of wastewater properties) increase by 39.7 percent to $76.35 per property in 2012/13.

The difference is partly explained by the assumed growth in water consumption per customer; however, these are significant movements in excess of the combined figure for price escalation and regional growth factors.

[133] Unitywater submission to QCA, dated August 2012, page 96.

Table 5.50: Analysis of Expenditure Variances – Other Materials and Services Expenses

	2010/11	2011/12	2012/13	2013/14	2014/15
Total Other Materials and Services Expenses ($'000 nominal)	14,540.1	15,766.2	22,537.9	23,754.7	24,894.4
ML purchases	46,736	56,695	60,448	64,550	67,303
$/kL	0.31	0.28	0.37	0.37	0.37
% change	15.8%	-10.6%	34.1%	-1.3%	0.5%
Properties Serviced	285,532	288,404	295,188	302,130	309,236
$/property	50.92	54.67	76.35	78.62	80.50
% change	0.1%	7.4%	39.7%	3.0%	2.4%

Source *Worksheet 5.4.1; Interim Price Monitoring Submission 2012/13 – Data Template*

For comparative purposes, it is noted that the equivalent unit rates for Queensland Urban Utilities are substantially greater, as follows:

- Total other materials and services expenditure per unit of water purchased is forecast to increase by 7.3 percent to $1.10 per kilolitre in 2012/13; this follows a 47 percent increase in 2011/12; and
- Total other materials and services expenditure per number of wastewater properties is forecast to increase by 9.3 percent to $287.99 per property; this follows a 52 percent increase in the previous year.

A similar analysis, but based on other materials and services expenditure incurred in providing water supply services (excluding the cost of bulk water) and wastewater services respectively, is presented in **Table 5.51**. This again shows increases substantially in excess of general inflation, with specific increases in 2012/13 as follows:

- Water related other materials and services expenditure per unit of water purchased increases by 45.3 percent to $0.13 per kilolitre; and
- Wastewater related other materials and services expenditure per number of wastewater properties increases by 33.4 percent to $41.57 per property.

Table 5.51: Analysis of Other Material and Services Expenditure Variances –Service Related

	2010/11	2011/12	2012/13	2013/14	2014/15
Water Expenditure	4,288.0	5,072.5	7,858.0	8,214.9	8,581.0
Drinking Water Purchases (ML)	46,736	56,695	60,448	64,550	67,303
$/kL	0.09	0.09	0.13	0.13	0.13
% change	-17.3%	-2.5%	45.3%	-2.1%	0.2%
Wastewater Expenditure	8,499.9	8,986.9	12,272.3	13,009.3	13,656.4
Wastewater Properties Serviced (No)	285,532	288,404	295,188	302,130	309,236
$/property	29.77	31.16	41.57	43.06	44.16
% change	2.5%	4.7%	33.4%	3.6%	2.6%

Source *Worksheet 5.4.1; Interim Price Monitoring Information Return 2012/13 – Data Template*

Again for comparative purposes, it is noted that the equivalent unit rates for Queensland Urban Utilities are as follows:

- Water related other materials and services expenditure per unit of water purchased is forecast to increase by 10.0 percent to $0.52 per kilolitre in 2012/13; this follows a 73 percent increase in 2011/12; and
- Wastewater related other materials and services expenditure per number of wastewater properties is forecast to increase by 7.7 percent to $130.66 per property following a 35 percent increase in the previous year.

5.3.5.5 Other Materials and Services Expenses by region

There is significant difference in the movements in other materials and services expenses incurred in the individual regions (Moreton Bay and Sunshine Coast), as illustrated in **Table 5.52** (which shows actual cost distribution) and **Table 5.53** (which shows year-on-year variations by region and service).

Table 5.52: Other Materials and Services Expenses by Region ($'000 nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	1,870.9	2,528.4	3,388.9	3,532.2	3,676.6
	Other Core Water	641.3	664.1	969.5	1,017.3	1,066.4
	Wastewater	4,913.5	4,772.4	6,659.6	7,053.9	7,396.2
	Trade Waste	161.5	148.3	146.4	155.4	163.5
	Other Core Wastewater	152.7	189.1	209.0	220.3	232.1
	Total	*7,739.9*	*8,302.2*	*11,373.5*	*11,979.1*	*12,534.9*
Sunshine Coast	Water	2,417.1	2,544.1	4,469.0	4,682.6	4,904.4
	Other Core Water	565.2	430.8	749.4	784.7	823.4
	Wastewater	3,586.3	4,214.5	5,612.7	5,955.3	6,260.1
	Trade Waste	75.6	109.2	144.8	154.2	162.3
	Other Core Wastewater	156.0	165.4	188.5	198.7	209.3
	Total	*6,800.2*	*7,464.0*	*11,164.4*	*11,775.6*	*12,359.5*
Total	Water	4,288.0	5,072.5	7,858.0	8,214.9	8,581.0
	Other Core Water	1,206.5	1,094.9	1,718.9	1,802.0	1,889.9
	Wastewater	8,499.9	8,986.9	12,272.3	13,009.3	13,656.4
	Trade Waste	237.0	257.5	291.2	309.7	325.8
	Other Core Wastewater	308.7	354.5	397.5	418.9	441.4
	Total	14,540.1	15,766.2	22,537.9	23,754.7	24,894.4

Table 5.53: Other Materials and Services Expenses by Region – Year-on-Year Percentage Change (based on $nominal)

Region	Service	2010/11	2011/12	2012/13	2013/14	2014/15
Moreton Bay	Water	-	35.1%	34.0%	4.2%	4.1%
	Other Core Water	-	3.6%	46.0%	4.9%	4.8%
	Wastewater	-	-2.9%	39.5%	5.9%	4.9%
	Trade Waste	-	-8.2%	-1.2%	6.1%	5.2%
	Other Core Wastewater	-	23.8%	10.5%	5.4%	5.4%
	Total	-	*7.3%*	*37.0%*	*5.3%*	*4.6%*
Sunshine Coast	Water	-	5.3%	75.7%	4.8%	4.7%
	Other Core Water	-	-23.8%	74.0%	4.7%	4.9%
	Wastewater	-	17.5%	33.2%	6.1%	5.1%
	Trade Waste	-	44.5%	32.6%	6.5%	5.2%
	Other Core Wastewater	-	6.0%	14.0%	5.4%	5.4%
	Total	-	*9.8%*	*49.6%*	*5.5%*	*5.0%*
Total	Water	-	18.3%	54.9%	4.5%	4.5%
	Other Core Water	-	-9.2%	57.0%	4.8%	4.9%
	Wastewater	-	5.7%	36.6%	6.0%	5.0%
	Trade Waste	-	8.6%	13.1%	6.3%	5.2%
	Other Core Wastewater	-	14.8%	12.1%	5.4%	5.4%
	Total	-	8.4%	43.0%	5.4%	4.8%

Other materials and services expenses incurred in providing services to Moreton Bay increase by 37.0 percent while the equivalent figure for the Sunshine Coast is an increase of 49.6 percent. The increase in the water associated expenses on the Sunshine Coast is more than double the increase for Moreton Bay.

5.3.5.6 Identification of specific cause of increases

Unitywater has provided copies of its divisional budgets by account code.[134] Variations in account classifications make it difficult to track variations.

The following examples, suggest a large increase in spending on consultants. Unfortunately, this expenditure cannot be tracked back to specific projects on the basis of the information supplied:

- Business Development – $3 million on consultants (other), an increase of $2.9 million on 2011/12;
- ICT – $1 million on consultants (other), an increase of $0.9 million; and
- Strategic Planning – $3.8 million on consultants (engineering), and increase of $1.4 million.

[134] Unitywater email dated 25 October 2012

Whilst the additional expenditure in respect of consultants may in part reflect the previously identified reallocation of $3.6 million, the resultant $0.8 million increase ($5.2-$3.6 million) represents an increase of approximately 40 percent over the previous allowance for these consultant costs.

Other large variations are:

- ICT – $2.1 million on software and hardware licences, and increase of $0.6 million;
- Business Support Services – $2.8 million on building lease expense, an increase of $0.8 million; and
- Field Services – $2.5 million on repairs and maintenance, an increase of $2.5 million.

5.3.5.7 Actions taken by Unitywater to improve efficiency

Unitywater has described the process adopted for budgeting for other materials and services as:[135]

- "*Based on the Q2 Forecasted figures a collaborative approach was used to assess the potential impacts, from both a cost reduction/optimization perspective and potential cost increase.*
- *The data provided us with a base point from which to amend/update to allow for known factors such as:*
  - *Site Upgrades/Augmentations/Reduction in capacity;*
  - *Expected flow increases/decrease through the network;*
  - *Projects timetables/roll outs; and*
  - *Reclassification of report groupings of cost items for reporting purposes, post Q2 Forecast submission.*
- *Based on the data available at the point when the budget was compiled (Q2 2011/12), a review was undertaken to assess whether or not there were any anomalies or extenuating factors that needed to be considered to be able to use this data to compile the budget data for 2012-13*."

At meetings with Unitywater on 4 and 5 October, the gateway process for project approval was explained including the strong involvement of the executive. In addition, new asset management systems and greater emphasis on planned maintenance were outlined.

These actions clearly demonstrated how budget constraints are applied and how work priorities are assigned. These discussions were supported with examples of how these processes are applied.

5.3.5.8 Opportunities for additional savings

Unitywater has not linked these process improvements to the cost classifications adopted by the QCA.

Because of this, Unitywater has not demonstrated what is driving the large increase in expenditure on Other Materials and Services in 2012/13. Specific increases by service and region need to be linked to, for example:

[135] Unitywater email dated 25 October 2012, document titled 'QCA information materials and services'.

- Legal requirements;
- Service standards; and
- Business sustainability.

5.3.5.9 Prudence and Efficiency of Unitywater's 2012/13 Other Materials and Services expenses

The escalation rate of 3.25 percent adopted in respect of other materials and services costs is high when compared to the general inflation rate. Furthermore, it only explains part of the very significant (43 percent) forecast increase for this expenditure component in 2012/13.

If the $3.6 million of Contractor expenses reallocated to Other Material and Services is taken into account, the increase from 2011/12 to 2012/13 still amounts to some 16.4 percent. In the absence of detailed explanation (not available at the time of writing), this increase is considered excessive.

Accordingly, Halcrow proposes that the increase be based on Unitywater's adopted escalation rate of 3.25 percent (for other than labour and electricity), with a further margin of 1.75 percent allowed to account for unidentified items; ie. a net increase of 5 percent is proposed. The resultant forecast amounts to $20.34 million (($15.77 million + $3.6 million) x 1.05); this equates to a reduction of approximately $2.20 million or 9.8 percent in comparison to Unitywater's forecast.

5.4 Cost Allocation

5.4.1 Overview

In order to assess the veracity of the breakdown of expenditure forecasts by service and region, Halcrow has undertaken a review of Unitywater's approach to the allocation of costs.

Unitywater has provided the following documents in support of its cost allocation policies:

- 2011/12 Annual Report including notes to the accounts and unqualified audit opinion provided by the Queensland Auditor-General;
- Comment in its Interim Price Monitoring Submission (refer section 13.3, page 92 and section 13.7, page 95); and
- Document titled *Cost Allocation Model (CAM) 12/13*.

Unitywater also provided a verbal explanation of its cost allocation policies during meetings on 4 and 5 October 2012.

Cost allocation policies are necessary to guide the allocation of costs in support of robust cost tracking, product costing and ultimately product pricing. For example:

- The allocation of costs is important to ascertaining where money is being spent and whether expenditure is on budget.
- If an item is expensed then it is expected to be recovered through prices in the year incurred, whereas if it is classified an asset then it is to be recovered over the life of the asset.
- Prices for specific services (eg. water, wastewater) and for the different regions (Moreton Bay and Sunshine Coast) are based on the expenditure incurred in providing those services in those regions.

5.4.2 Principles of Cost Allocation

The QCA[136] and other Australian regulators[137] have established principles for cost allocation.

Consistent with these principles, QCA states[138] in the information requirements for this inquiry that the costs:

"*... must be disaggregated by each entity according to the following deemed categories:*

(a) each Activity;

(b) each geographic area;

(c) *each core service and (in aggregate) non-regulated services.....*"

and that these allocations must be based on the principle that:

"*(a) amounts are directly attributable to that category;*

(b) amounts which are not directly attributable to a category must be allocated on a causal basis, except where a causal relationship cannot be reasonably established. Amounts may be allocated on non-causal basis provided that:

(i) there is likely to be a strong positive correlation between the non-causal basis and the actual cause of resource or service consumption or utilisation that those costs represent; or

(ii) the cost to derive the causal allocation outweighs the benefits of allocating items on that basis; and

(iii) the aggregate of all amounts allocated on a non-causal basis is not material to the price monitoring information return."

Halcrow has reviewed QUU's approach to cost allocation in light of these principles/guidelines.

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[136] QCA publications include:
- QCA, *SEQ Interim Price Monitoring, Information Requirements for 2012-13*, August 2012, page 5.
- Deloitte, *Queensland Competition Authority;, SunWater; Administration Cost Review Phase 2*, 25 August 0211.
- PricewaterhouseCoopers, *Allocating capital costs of bulk water supply assets*, September 2010.

[137] For example:
- Australian Competition and Consumer Commission, Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules, July 2011.
- Australian Energy Regulator, *Electricity distribution network service providers, Cost allocation guidelines*, June 2008.
- IPART, *Draft cost allocation guide, Water Industry Competition Act 2006*, 2008.

[138] QCA, *SEQ Interim Price Monitoring, Information Requirements for 2012-13*, August 2012, page 5.

5.4.3 Accounting Changes

Since its formation Unitywater has changed how it accounts for various items. These changes include:[139]

- Increasing in 2011/12 the amount of capitalised corporate support costs from $10 million to $21 million. This resulted from a change in policy on capitalisation that is also adopted for 2012/13; the equivalent 2012/13 figure is $21.9 million.

  This expenditure is now recovered over the life of the assets to which the costs have been attributed rather than the year the expenditure is incurred. In support of this change, the Auditor-General has given an unqualified audit opinion for Unitywater's 2011/12 statutory accounts.

- Transferring $3.6 million from contractor expenses to other materials and services. In addition, Unitywater explains the reduction in the estimate of contractor expenses for 2012/13 from its 2011/12 to its 2012/13 Interim Price Monitoring Submission (a reduction of around $13 million or 50 percent) as being "*largely explained by the change in capitalisation policy*".[140]

The combined effect of the change in capitalisation policy is a reduction of around $26 million ($10 million plus $13 million) in operating expenditure. At the same time, the reduction in the estimates from the 2011/12 return to the 2012/13 return for the financial year 2012/13 is around $17 million.

5.4.4 Unitywater's Approach to Cost Allocation

5.4.4.1 General

As noted in Section 5.4.1, Unitywater has provided a number of documents in support of its cost allocation policies. The following discussion focuses on the documents/policies indentified above.

5.4.4.2 Annual Accounts

The unqualified audit opinion from the Auditor General confirms that Unitywater complies with accounting standards (including capitalisation policies) in the preparation of its annual accounts.

In conformity with these, the Annual Report states (page 54):

"*Wages and materials expenditure incurred in the acquisition or construction of assets is treated as capital expenditure. Routine operating maintenance and repair costs to maintain the operational capacity of the asset is expensed as incurred, while expenditure that relates to replacement of a major component of an asset to maintain its service potential is capitalised.*

Costs incurred subsequent to the initial asset purchase are capitalised when the expenditure improves the condition of the asset beyond its originally assessed standard of performance or capacity."

[139] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

[140] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

5.4.4.3 Unitywater's cost allocation policy

Unitywater has provided the breakup of direct and indirect operating expenditures (including bulk water and non-regulated expenditure) shown in **Table 5.54**.[141]

Table 5.54: Direct and Indirect operating expenditure 2012/13 ($million)

Region	Direct	Indirect	Total	% of Indirect
Moreton Bay	107.2	38.8	146.0	26.7%
Sunshine Coast	82.0	34.3	117.0	29.3%
Total	190.0	73.1	263.1	27.8%

The table highlights the importance of the cost allocation policy with nearly 28 percent of operating expenditure being classified as indirect and allocated across services and regions by application of the allocation policy.

Costs that are specific to a service (eg. water, sewerage, recycled water and trade waste) and region (north, south) are directly assigned. Activities that span more than one region (eg. trade waste management system) and/or more than one product (eg. corporate support, retail) need to be assigned to derive the total costs by service and region.

Unitywater has provided a detailed description in the document *Cost Allocation Model (CAM) 12/13* of how it maps its operating expenditure for internal purposes and subsequently to the QCA cost classifications. While it has developed a sophisticated allocation approach based on specific project drivers, Unitywater has adopted a simplified approach for its QCA return. It did this because of data limitations and consistency with prior years' returns.[142]

Unitywater's final allocation of expenditure is summarised as:[143]

(Directs) + (allocation of 'Product Reg')+(allocation of 'Rest')+(ancillary services)

Where:

- Directs = involve projects directly linked to one of the product categories. Those product categories are: Water, Sewerage, Trade Waste, Recycled Water and Non-regulated, each by region (North or South);
- 'Product Reg' = products (water, sewerage, trade waste, recycled water) that span more than region;
- 'Rest' = Corporate, Facilities, ISD support, Retail, Scientific Services; and
- Ancillary services= Other core water, Other core wastewater and Non-regulated other services.[144]

[141] Unitywater submission to QCA, August 2012, page 96.

[142] Unitywater document 'Cost Allocation Model (CAM) 12/13', page 6.

[143] Unitywater document 'Cost Allocation Model (CAM) 12/13', page 8.

[144] Unitywater document 'Cost Allocation Model (CAM) 12/13', page 13.

For Ancillary services Unitywater assumes that the revenue earned from these services equals the cost. Unitywater has no cost tracking system in place for them.[145] The revenue earned from them is deducted from the sum of the costs to be allocated across the products.

This leaves open the question of how they are priced in the first instance and whether there is cross subsidisation.

Products that span more than one region ('Product Reg') are allocated between regions based on drivers related to the costs to be allocated. These drivers (simplified for QCA reporting) are workstations and FTEs (which are assumed to be 50:50 between north and south), water meters (which are assumed to equal customer numbers and allocated 53.7 percent south and 46.3 percent north) and the RAB for the balance excluding bulk water and fleet.

Where Corporate and other support services ('Rest') cannot be directly allocated they, similar to 'Product Reg', are allocated by applying the RAB, FTEs, workstations and customer numbers.

Unitywater has advised that:[146]

"*Unitywater intends to conduct a comprehensive review of the drivers once a uniform framework has been developed by the QCA in conjunction with the distributors/retail entities.*"

A review of Unitywater's costs allocation policy was undertaken by SKM as part of the 2011/12 review of expenditure[147]. Whilst generally accepting of Unitywater's approach, SKM was critical of the use of the RAB for allocating costs between the wastewater via sewer and trade waste.[148]

QUU has developed a more sophisticated approach for allocating wastewater costs utilising its sewage cost model that takes account of sewage flows and loads by customer group. This is consistent with SKM's recommendation in respect of Unitywater's allocation approach; Halcrow also supports the adoption of such an approach for the allocation of wastewater costs between wastewater via sewer and trade waste services.

5.4.5 Compliance with guidelines and common practice

5.4.5.1 General

Unitywater's account classifications allow direct cost to be attributed to direct areas, eg. responsibility centre, region, activity. This complies with the QCA information requirements.[149]

[145] Unitywater document 'Cost Allocation Model (CAM) 12/13', page 13.

[146] Unitywater document 'Cost Allocation Model (CAM) 12/13', page 5.

[147] SKM, *SEQ Interim Price Monitoring; Unitywater; Capex Opex Review (Rev 2; Final)*, 30 January 2012, page 57.

[148] SKM, *SEQ Interim Price Monitoring; Unitywater; Capex Opex Review (Rev 2; Final)*, 30 January 2012, page 60.

[149] QCA, *SEQ Interim Price Monitoring, Information Requirements for 2012-13*, August 2012, page 5.

Unitywater has established bases for the allocation of indirect and common costs. At issue is whether these bases of allocation are adequate.

5.4.5.2 Common practice

In 2011 QCA engaged Deloitte to review SunWater's cost allocation methodology.[150]

SunWater proposed direct costed labour as an appropriate basis for allocating centralised cost.[151] SunWater did indicate, however, that 18 percent of its centralised costs were allocated directly "*based on an estimate of effort required*".[152] QUU's submission suggests that no local support costs or corporate costs are allocated directly.[153]

It is of interest here, to review SunWater's arguments not to adopt other bases for cost allocation; these are summarised as: [154]

- "*Number of customers – the cost of some centralised functions will be affected by the number of customers serviced. However, the relationship between customer numbers and related customer functions is not linear - the addition of one customer does not generate additional costs for the customer service function.*
- *Asset characteristics – some costs may be affected by the characteristics of certain assets. For example, older assets, critical assets and more complex assets may require more intensive asset management effort. .... the relationship between asset feature (age, replacement value etc) and centralised costs is imprecise, and will generally have no bearing on many non-asset management costs that are centralised.*
- *Transactions – some assets/services involve more transactions which need to be supported by centralised resources. Assets involving a greater proportion of purchasing requirements (and) customer transactions will arguably have a greater impact upon the level of centralised resources to support these transactions. However, these transactions only apply to a limited number of centralised activities and would not have broad relevance.*
- *Accordingly, selecting one of the above categories to allocate costs is likely to bias the outcome towards one of these measures. This could be remedied by using multiple drivers to allocate different costs types. However, this involves additional complexity .... Indeed, selecting different drivers can increase the scope for error as it may require a number of different cost relationships to be found when only a weak relationship exists. As such, it promotes illusory precision.*"

Deloitte broadly supported SunWater's proposal to use direct costed labour as the cost allocation basis, but with several refinements to better target causal factors;[155] for example, the use of transactions to allocate procurement costs and linking functions to service contracts. In other cases Deloitte recognised that there may be no recognised driver of costs and direct costed labour was the best available alternative.

[150] Deloitte, *Queensland Competition Authority;, SunWater; Administration Cost Review Phase 2*, 25 August 0211., page 81.

[151] Sunwater, *QCA review of irrigation prices, Supplementary Information, Allocation of centralised costs*, February 2011, page 9.

[152] Ibid, page 7.

[153] QUU, *QCA Interim Price Monitoring; Information Return 2012/13*, 31 August 2012, page 29.

[154] Sunwater, *QCA review of irrigation prices, Supplementary Information, Allocation of centralised costs*, February 2011, page 8.

[155] Deloitte, *Queensland Competition Authority;, SunWater; Administration Cost Review Phase 2*, 25 August 0211., page 81.

In January 2010, the Australian Energy Regulator accepted Jemena's proposal to allocate shared costs on the basis of direct costs:[156]

"*Where costs are shared across the different categories of distribution services, JEN allocated these costs in accordance with the proportion of direct costs that have already been allocated to these services. Allocation of shared costs in accordance with the proportion of direct costs is a common shared cost allocation approach that is applied by a number of other electricity network businesses in their CAMs (cost allocation).*"

Similarly, Sydney Water allocates indirect costs to the water, wastewater and stormwater services in proportion to direct costs.[157]

The Independent Pricing and Regulatory Tribunal of NSW (IPART) in its inquiry into bulk water prices charged by State Water adopted State Water's proposal to use FTEs (as a surrogate for direct costed labour) to allocate common costs:[158]

"*Salaries and wages are a key driver and a significant portion of State Water's total costs, and so represent a superior method of common cost allocation ...*"

5.4.5.3 Compliance with guidelines

Direct costs:

Unitywater's systems enable it to comply with the QCA's information requirements for allocating direct costs.

Indirect and common costs:

Unitywater has developed a sophisticated approach to allocating indirect and support expenditure. The exception to this is ancillary services.

Unitywater advises it plans to "*undertake a zero based cost exercise for each of these services and then price and allocate costs accordingly*".[159] In the interim, cost distortions and incorrect pricing outcomes are likely.

There is an issue, based on SunWater's comments (refer **Section 5.4.5.2**) and the previous directions taken by the QCA, as to whether Unitywater's more sophisticated approach achieves a better outcome than the more simplified approach of using direct costs (or direct labour costs) as the allocator for indirect and support expenditure. This particularly applies to the use of the RAB.

[156] AER, *Final decision, Jemena Electricity Networks, cost allocation method*, February 2010, page 4.

[157] WS Atkins/Cardno, *Final Report; Detailed Review of Sydney Water Corporation's Operating and Capital Expenditure*, November 2011, page 85.

[158] IPART, *Review of bulk water charges for State Water Corporation: From 1 July 2010 to 30 June 2014*, June 2010, page 117.

[159] Unitywater document 'Cost Allocation Model (CAM) 12/13', page 13.

5.4.6 Appropriateness of allocation approach

Whilst Halcrow considers Unitywater's policies for cost allocations are consistent with the information requirements, it has qualifications. These qualifications relate to:

- Ancillary services;
- The division of costs between wastewater and trade waste; and
- The use of the RAB more generally as an allocator of operating expenditure.

5.5 Benchmarking (Operating Expenditure)

Halcrow has undertaken high level benchmarking, based on reported performance indicators,[160] of the level of operating expenditure incurred by Unitywater. The indicators adopted for this assessment assess the reported operating costs on a customer (per property), network (per kilometre of pipeline) and volume (per volume of service provided) basis. Customer based indicators are directly reported; others are derived from the reported information.

Comparators adopted for the purposes of this assessment are:

- Queensland Urban Utilities (QUU);
- Sydney Water Corporation;
- Yarra Valley Water; and
- Melbourne (aggregated figures determined form information reported by City West Water, South east Water and Yarra Valley Water).

These comparators have been adopted as they are all large distribution and retail water utilities; in each case bulk water supply services are provided by separate entities.

The adopted indicators are presented in **Table 5.55**. Figures for 2010/11 (latest published NWC Report) are presented for all comparators.

[160] Information sourced principally from: National Water Commission, *National Performance Report 2010-11; Urban water utilities; Part B – spreadsheet of all data reported.* Report available at: http://archive.nwc.gov.au/library/topic/npr/nprs-2010-11-urban

Table 5.55: Unitywater Operating Cost Benchmarks (Unit Costs) based on NWC Reported Information

Metric Type	Description	Unitywater	QUU	Sydney Water	Yarra Valley Water	Melbourne
		2010/11	2010/11	2010/11	2010/11	2010/11
Customers	Total costs per connection	508 (752)	724	579	556	615
	Water costs per connection	307 (551)	482	323	286	323
	Wastewater costs per connection	201	242	256	270	292
Network	Total costs per km of pipeline	24,603 (36,580)	43,395	45,953	40,497	46,723
	Water costs per km of pipeline	15,085 (27,062)	29,563	27,488	21,096	24,428
	Wastewater costs per km of pipeline	9,518	13,832	18,465	19,401	22,295
Volume	Total costs per ML of drinking water	2,775 (4,153)	3,213	2,367	2,937	3,016
	Water costs per ML of drinking water	1,736 (3,114)	2,169	1,336	1,568	1,625
	Wastewater costs per ML of drinking water	1,040	1,044	1,031	1,369	1,391
	Wastewater costs per ML of wastewater	751	836	877	1,240	1,345

Note:
Unitywater figures reported under the NWC Reporting Framework exclude the cost bulk water. An estimation of these costs has been made using bulk water costs reported in the 2012/13 Interim Price Monitoring Information Return submitted by Unitywater; the impact is shown bracketed in each case where relevant.

All inputs used in compiling **Table 5.55** were subject to independent audit in 2010/11, which provides a degree of confidence in the figures. Whilst the NWC Report notes[161] that the Unitywater (and QUU) figures exclude the cost of bulk water services, QUU has subsequently advised[162] that this is not the case for its figures. Accepting QUU's position, an estimation of the resultant adjustments is shown (bracketed); this has been determined by adding in the bulk water costs as reported by Unitywater in its 2012/13 Interim Price Monitoring Information Return.

Assessment of the information presented in **Table 5.55** leads to the following observations:

[161] National Water Commission, *National Performance Report 2010-11; Urban water utilities; Part A – comparative analysis; Appendix A: Capital City Comparison.* Extract (page 117): "*Note that data for Brisbane includes only the distribution and retail components of water services, unlike data for the other capital cities. The bulk utilities serving Brisbane (WaterSecure, Seqwater, LinkWater and the SEQ Water Grid Manager) also serve a much wider geographical area, and data was not able to be disaggregated for Brisbane for this report.*"

[162] QUU, *QUU Response to Revised Halcrow Report* (attachment to email dated 19 December 2012).

- Unitywater's unit cost to customers for water services is significantly (approximately 70 percent) higher than for its Sydney and Melbourne counterparts. This comparison is reversed in respect of wastewater services (Unitywater's costs are approximately 27 percent less than its comparators); in total (water and wastewater services combined), Unitywater's costs per property are approximately 26 percent greater than the interstate comparators.
- Unitywater's total unit cost to customers is approximately 4 percent greater than for QUU. This relativity reflects that shown in respect of water (14 percent greater) and wastewater (17 percent less) respectively.
- Unitywater's total cost of operations in relation to its asset base (pipeline length) is less (by approximately 20 percent) than its interstate counterparts from an overall perspective; it is slightly (4 percent) higher in respect of water services, but significant (53 percent) lower for wastewater services.
- Unitywater's total cost of operations in relation to its asset base is also considerably (approximately 16 percent) less than for QUU. This comparison reflects the influence of both water (9 percent less) and wastewater (31 percent less) services.

Halcrow notes that the comparisons between Unitywater and QUU presented above are, in some cases, inconsistent with 'unit rate' figures presented earlier in this report.

In order to provide a further comparison, Halcrow has undertaken an assessment of the adopted indicators for the years 2011/12 and 2012/13 for both Unitywater and QUU based on the information included in their 2012/13 Interim Price Monitoring Information Returns. Where the required information is not available in the Information Returns, this has been derived from annual reports or other sources; where updated data not available for 2012/13, 2011/12 data has been carried forward. This resulting analysis is presented in **Table 5.56**.

Assessment of the information presented in **Table 5.56** leads to the following observations:

- Year on year movements in cost (from 2011/12 to 2012/13) for Unitywater are far less pronounced than for QUU; where the impact of bulk water cost increases is excluded, they are generally less than (which indicates real reductions in cost), or of a similar order to forecast CPI (expected to be in the order of 2.5 percent).
- Year on year movements in cost (from 2011/12 to 2012/13) for QUU are significantly in excess of general inflation forecast as indicated by CPI.
- When assessed relative to the asset base (as represented by kilometres of water and wastewater pipeline), Unitywater's costs are significantly less than those of QUU. This may in part be due to the density of QUU's customer base, although (as discussed in **Section 5.2.5**) Unitywater has higher numbers of infrastructure for unit service delivery than QUU.
- Unitywater's costs for the provision of wastewater services are greater than those of QUU when cost per connection is considered; conversely, however, its costs for the provision of water (excluding bulk water costs) per connection are less than for QUU.

Table 5.56: Comparative Assessment of Unitywater and QUU Operating Costs (based on Interim Price Monitoring Submissions)

Metric Type	Description	QUU ($)			Unitywater ($)			Entity Comparison (Unitywater/QUU)	
		2011/12	2012/13	Variance	2011/12	2012/13	Variance	2011/12	2012/13
Customers	Total costs per connection (incl bulk water)	878	1,001	14.1%	875	960	9.8%	-0.3%	-4.1%
	Total costs per connection (excl bulk water)	463	505	9.1%	541	548	1.2%	16.9%	8.4%
	Water costs per connection (incl bulk water)	590	703	19.1%	521	605	16.1%	-11.7%	-13.9%
	Water costs per connection (excl bulk water)	175	207	17.9%	187	192	2.5%	7.0%	-7.0%
	Wastewater costs per connection	288	299	3.8%	354	356	0.5%	22.9%	19.0%
Network	Total costs per km of pipeline (incl bulk water)	52,097	59,872	14.9%	42,369	46,796	10.4%	-18.7%	-21.8%
	Total costs per km of pipeline (excl bulk water)	26,723	29,504	10.4%	25,914	26,348	1.7%	-3.0%	-10.7%
	Water costs per km of pipeline (incl bulk water)	36,105	43,018	19.1%	25,705	29,972	16.6%	-28.8%	-30.3%
	Water costs per km of pipeline (excl bulk water)	10,730	12,650	17.9%	9,250	9,524	3.0%	-13.8%	-24.7%
	Wastewater costs per km of pipeline	15,993	16,854	5.4%	16,663	16,824	1.0%	4.2%	-0.2%
Volume	Total costs per ML of drinking water (incl bulk water)	3,685	4,091	11.0%	4,122	4,277	3.8%	11.9%	4.5%
	Total costs per ML of drinking water (excl bulk water)	1,902	2,028	6.7%	2,490	2,375	-4.6%	30.9%	17.1%
	Water costs per ML of drinking water (incl bulk water)	2,537	2,921	15.2%	2,549	2,787	9.4%	0.5%	-4.6%
	Water costs per ML of drinking water (excl bulk water)	754	859	13.9%	917	886	-3.4%	21.6%	3.1%
	Wastewater costs per ML of drinking water	1,148	1,169	1.9%	1,573	1,490	-5.3%	37.0%	27.4%
	Wastewater costs per ML of wastewater	1,108	1,168	5.4%	1,350	1,363	1.0%	21.8%	16.7%

Note:

1 Assessment based principally on data reported in the 2012/13 Interim Price Monitoring Information Returns submitted by QUU and Unitywater.

2 Where not otherwise available, data obtained from annual reports and other sources; 2011/12 data carried forward to 2012/13 where updated data not available.

5.6 Summary Assessment of Operating Costs

5.6.1 Assessment of Costs

Unitywater's regulated operating expenditure (excluding bulk water) is forecast to increase marginally (+1.7 percent) in nominal terms in 2012/13. This is less than the forecast rate of inflation (2.5 percent), and represents a reduction of 0.8 percent in real terms.

In spite of this achievement, Halcrow is of the view that there is scope for further efficiencies to be achieved. Areas of concern include:

- Whilst the most recent (November 2012) forecasts of inflation issued by the Reserve Bank support the adoption of a 3.25 percent general inflation rate, an allowance of 2.75 percent (based on Queensland Treasury forecasts) would have been more appropriate at the time Unitywater's 2012/13 budget (and Interim Price Monitoring Submission) was being prepared.
- Whilst Unitywater has taken major initiatives (including redundancies) to reform its workforce practices and reduce employee expenses, it may not have fully accounted for the benefits to be derived from these initiatives. For example, it has taken action to improve the efficiency of its field services workforce; allowance for some efficiency gain could be expected.
- Even accepting the very substantial (+19.5 percent) increase in the unit cost of electricity supply, an effective increase of 13.9 percent in electricity use far outweighs the forecast increase in either water demand (as indicated by forecast bulk water purchases) or the number of properties to which wastewater services are to be provided.
- Unitywater's corporate costs, as a proportion of total operating expenditure, are considered excessive when compared to benchmarks for similar government owned organisations.
- Whilst the quantum of Other Material and Services expenses are impacted by the reallocation of expenditure previously reported as Contractor expenses in 2012/13, the effective increase (+16.4 percent) is substantially in excess of what is expected on the basis of escalation and the growth in services.
- Industry level benchmarking indicates that, whilst Unitywater's unit costs of service provision compare favourably with those forecast by Queensland Urban Utilities, they are higher (at an aggregate level) than those incurred by assessed interstate comparators.

On the basis of these observations, an adjustment to Unitywater's forecast 2012/13 Operating Expenditure is proposed, as detailed in **Section 5.7**.

5.6.2 Cost Allocation

Unitywater has implemented changes to its approach to the allocation of costs for the preparation of its 2012/13 budget. Specific project drivers are used as the basis of a sophisticated approach.

Unitywater has, however, adopted a simplified approach for the purposes of compiling its 1012/13 Interim Price Monitoring Return. It did this because of data limitations and consistency with prior years' returns.

Whilst Halcrow considers Unitywater's policies for cost allocations are consistent with the information requirements, it has qualifications. These qualifications relate to:

- Ancillary services;
- The division of costs between wastewater and trade waste; and
- The use of the RAB more generally as an allocator of operating expenditure.

Notwithstanding the steps taken to date, Unitywater has indicated its intention to undertake a more comprehensive review of its allocation approach once reporting frameworks are further defined.

5.7 Recommended Operating Expenditure

As identified above, a number of adjustments are proposed to Unitywater's forecast operating expenditure for 2012/13. These adjustments, which are proposed in respect of the expenditure categories reviewed, are as follows:

- *Employee Expenses:*

  On the basis of the analysis outlined in **Section 5.3.2**, Halcrow is of the view that some adjustment should be made to forecast Employee expenses on the basis of increased efficiencies being achieved by (for example) Field Services staff. As outlined in **Section 5.3.2.8**, a reduction of $1.28 million, which represents a reduction of 2.5 percent of forecast total employee expenses, is proposed.

- *Electricity:*

  On the basis of the analysis outlined in **Section 5.3.3**, Halcrow considers that some adjustment should be made to forecast Electricity expense; the 13.9 percent assumed effective increase in demand for electricity is deemed excessive. As discussed in **Section 5.3.3.9**, a reduction of $0.72 million, which equates to a reduction of 8.3 percent in Unitywater's forecast electricity costs is proposed.

- *Corporate Expenses:*

  On the basis of the analysis outlined in **Section 5.3.4**, Halcrow is of the view that an adjustment of $2.5 million, which represents a reduction7.8 percent, should be made to forecast Corporate costs.

- *Other Materials and Services:*

  On the basis of the analysis outlined in **Section 5.3.5**, Halcrow is of the view that an adjustment should be made to forecast Other Materials and Services expenses on the basis of unsubstantiated increase over the 2011/12 expenditure. As outlined in **Section 5.3.3.9**, Halcrow proposes that the forecast expenditure be adjusted to$20.34 million; this equates to a reduction of approximately $2.20 million or 9.8 percent in comparison to Unitywater's forecast.

In total, Halcrow proposes that a reduction of some $6.70 million in Unitywater's forecast of $143.58 million (excluding bulk water costs) is required to reflect an efficient level of regulated operating expenditure for 2012/13. This represents a reduction in the order of 4.7 percent.

6 Capital Expenditure

6.1 Overview

Unitywater has reported actual and forecast capital expenditure of $279.35 million ($nominal) over the five (5) year period from 2010/11 to 2014/15 with $68.49 million ($nominal) forecast in 2012/13, as shown in **Table 6.1**. Of the 2012/13 forecast, $37.59 million relates to donated/gifted assets, leaving expenditure of $314.38 million to be incurred directly by Unitywater.

Table 6.1: Actual and Forecast Capital Expenditure ($'000 nominal)

Expenditure	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Total Capital Expenditure	181,441	234,977	351,972	251,247	125,285	1,144,923
Value of Donated/Gifted Assets	55,132	31,563	37,588	39,017	40,311	203,610
Unitywater Capital Expenditure	126,310	203,414	314,384	212,230	84,975	941,313

Total capital expenditure is increasing steadily over the three year price monitoring period, although shows reductions in both 2013/14 and 2014/15.

A breakdown of the total expenditure by region and service is shown in **Table 6.2** and **Table 6.3** respectively. More detailed assessment reveals that:

- approximately 55 percent of total capital expenditure over the five (5) year period is incurred in the Moreton Bay region, with the remaining 45 percent in the Sunshine Coast region;
- the allocation of expenditure by region is more focussed in the Moreton Bay region in 2012/13, with 65 percent of total forecast for that region; conversely, the proportion allocated to Sunshine Coast in 2012/13 is less than the five year average at 35 percent;
- the majority (72 percent) of expenditure over the five (5) year reporting period is incurred in respect of sewerage assets; water supply assets account for a further 26 percent, with the remaining 2 percent attributable to trade waste services; and
- there is greater focus on sewerage services in 2012/13 with an increase to 78 percent of the total capital expenditure; this is offset by a reduction in expenditure proportioned to water assets (20 percent), whilst the proportion of expenditure on trade waste services remains essentially consistent with the five year average.

Table 6.2: Actual and Forecast Capital Expenditure by Region ($'000 nominal)

Expenditure	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Moreton Bay	128,422.9	156,709.4	228,762.9	58,701.0	62,733.3	635,329.5
Sunshine Coast	53,018.2	78,267.6	123,209.4	192,546.1	62,552.2	509,593.5
Total capital expenditure	181,441.1	234,977.0	351,972.3	251,247.1	125,285.5	1,144,923.0

Table 6.3: Actual and Forecast Capital Expenditure by Service ($'000 nominal)

Expenditure	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Water	66,452.3	64,664.5	68,488.0	50,401.9	44,583.5	294,590.2
Wastewater	112,491.4	165,498.2	275,830.9	195,541.0	78,755.8	828,117.2
Trade Waste	2,168.8	4,164.7	7,061.3	5,040.6	1,574.3	20,009.8
Non-Regulated	328.5	649.5	592.1	263.6	372.0	2,205.7
Total capital expenditure	181,441.1	234,977.0	351,972.3	251,247.1	125,285.5	1,144,923.0

Whilst a range of drivers of expenditure have been identified by Unitywater, the primary drivers of capital expenditure include:

- Growth – which relates principally to the creation of new assets, or augmentation of existing assets to provide increased capacity;
- Renewal – which relates to the renewal (either by rehabilitation or replacement) of existing assets that have deteriorated, failed or otherwise reached (or are nearing) the end of their useful lives;
- Improvements – which relates to the enhancement of asset performance through the implementation of appropriate technological improvements; and
- Compliance – which relates to expenditure incurred in order to meet statutory requirements in respect of issues such as environmental impact, and occupational health and safety.

The allocation of capital expenditure incurred in relation to each of these primary drivers is shown in **Table 6.4**, which also shows the value of donated/gifted assets. Halcrow anticipates that the majority of donated assets would be aligned to the growth driver.

Table 6.4: Actual and Forecast Capital Expenditure by Primary Driver ($'000 nominal)

Expenditure	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Growth	99,588.5	138,849.7	237,139.4	120,774.5	51,335.9	647,688.0
Renewal	13,613.0	39,799.1	35,440.7	29,406.6	25,463.5	143,722.9
Improvement	9,568.5	19,118.6	31,354.2	60,521.8	7,617.2	128,180.3
Compliance	3,539.6	5,646.9	10,449.5	1,527.5	558.0	21,721.6
Contributed assets	55,131.5	31,562.6	37,588.4	39,016.8	40,310.8	203,610.1
Total capital expenditure	181,441.1	234,977.0	351,972.3	251,247.1	125,285.5	1,144,923.0

Assessment of the figures presented in **Table 6.4** reveals that:

- expenditure over the five (5) year reported period is principally driven by Growth, which comprises some 57 percent of total expenditure; some 18 percent of total expenditure is realised through Contributed (donated/gifted) Assets;
- Growth accounts for a greater proportion (67 percent) of expenditure in 2012/13, although the value of Contributed Assets (which are assumed to come predominantly from the development industry) shows a reduction to approximately 11 percent;
- after a fall in 2010/11, expenditure driven by Growth is forecast to peak (in both absolute and proportional terms) in 2012/13; this is also the case for expenditure driven by Compliance requirements; and
- the value of Contributed Assets fell in 2011/12, however, will remain broadly consistent (only marginally increasing) over the remainder of the reported period.

These trends are reflected in **Table 6.5**.

Table 6.5: Proportion of Capital Expenditure by Primary Driver

Expenditure	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Growth	54.9%	59.1%	67.4%	48.1%	41.0%	56.6%
Renewal	7.5%	16.9%	10.1%	11.7%	20.3%	12.6%
Improvement	5.3%	8.1%	8.9%	24.1%	6.1%	11.2%
Compliance	2.0%	2.4%	3.0%	0.6%	0.4%	1.9%
Contributed assets	30.4%	13.4%	10.7%	15.5%	32.2%	17.8%
Total capital expenditure	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

6.2 Review of Capital Projects

As part of the review of Unitywater's proposed capital expenditure, Halcrow undertook a detailed examination of a representative sample comprising of nine (9) projects[163] which are forecast to incur expenditure during the 2012/13 financial year. The projects selected for detailed review are as listed in **Table 6.6**.

The sample projects were selected (initially by the QCA) on the basis of project value and whether or not the projects had been previously been reviewed as part of the ongoing price monitoring process. Halcrow accepted the QCA's proposed selection (and its basis) noting that the selection included four (4) transitional projects, ie. projects required in support the operation of the newly established entity, in addition to five (5) specific projects.

When compared to Unitywater's capital program, the selected projects represent approximately 42 percent of the 2012/13 program in terms of capital value, which is significantly above the 10 percent threshold requested and 28 percent of the program of the five (5) year reported period.

Table 6.6: Capital Projects Selected for Detailed Review

Project Name	QUU Project ID	Geographic Area	2012/13 Expenditure# ($'000s nominal)
Mary River Road Cooroy - Cooroy STP Upgrade	2	Sunshine Coast	4,356
Sunshine Motorway Sippy Downs - Town Centre Trunk Sewer Main	11	Sunshine Coast	3,366
Communications Infrastructure Upgrade Program	74	Moreton Bay	2,558
Wastewater pumping station PS20X (78L/s v 15m)	178	Moreton Bay	1,906
Brendale WWTP Upgrade (Stage 3)	182	Moreton Bay	1,108
Upgrade Woodford Wastewater Treatment Plant	186	Moreton Bay	5,721
Asset Management System	459	Moreton Bay	1,362
GIS Establishment	460	Moreton Bay	3,543
System Enhancements & Improvements	1182	Moreton Bay	4,792

Note:

\# *Forecast expenditure to be incurred in 2012/13.*

It is noted that, whilst they can be expected to relate to the whole of Unitywater's operations, projects related to its business systems appear to have been assigned to the Moreton Bay region.[164]

[163] Halcrow was conflicted in respect to the review of one (1) project identified by the QCA; accordingly, review of a tenth project was undertaken by another consultant.

[164] Based on regional allocation shown in the detailed listing of Unitywater's capital projects (refer Interim Price Monitoring Submission).

In undertaking the detailed reviews of the above projects, Halcrow has sought to:

- identify the need for the project;
- identify the key drivers for investment;
- understand the approach to solution development adopted; and identify the alternative options considered and the basis for the preferred solution;
- understand the proposed method of procurement and delivery profile of the project;
- understand the basis of the cost build-up and whether any contingencies or allowances have been applied to capital expenditure forecasts;
- identify the proposed outputs of each project;
- understand the implications of the project in respect of operating expenditure; and
- assess the prudence and cost effectiveness of each project.

6.3 Detailed Investigations

6.3.1 General

The findings of the detailed investigations for each of the projects reviewed are summarised in the following sections. More detailed discussion in respect of each project is presented in **Appendix A**.

6.3.2 Mary River Road, Cooroy - Cooroy STP Upgrade (Project Ref No: 2)

The Cooroy Sewage Treatment Plant (STP), which has been in operation for approximately 40 years, is a traditional trickling filter treatment plant that discharges to the Mary River, a sensitive waterway. The STP, which has a design capacity of 4,000EP, is currently operating beyond its hydraulic and nutrient load capacity, with an average loading of 4,400EP currently recorded. The STP regularly exceeds its environmental discharge licence and, in the 12 months from July 2009 to June 2010, recorded 125 breaches of licence conditions. As a result of these infringements, Unitywater was required by the Department of Environment and Resource Management (DERM) to prepare a Transitional Environmental Program (TEP), which provided an undertaking to upgrade the existing STP.

On the basis of the forecast levels of growth within the catchment, Unitywater proposes to incrementally upgrade the existing STP over two stages; by initially constructing a low energy oxidation ditch treatment process with a design capacity of 6,250EP; and then, add an additional clarifier at a later date, in order to increase the capacity to 9,250EP.

At the time of review, the scheme was approximately 80 percent complete, with commissioning scheduled to commence in November 2012 and practical completion forecast for December 2012, which is one month later than originally forecast.

On the basis of the age of the Cooroy STP, and the fact that it is operating beyond its design loading capacity and regularly exceeds its environmental discharge licence conditions, upgrade of the STP is both necessary and prudent.

Halcrow considers that Unitywater has adopted a sensible approach to the project, designing a solution that enables phased delivery of additional treatment process elements, as and when growth within the catchment demands it. Although subject to additional procurement costs, Halcrow considers the Early Contractor Involvement (ECI) approach to procurement to have been both beneficial and cost effective. By involving a select number of contractors in the project definition phase, Unitywater has identified a number of innovations that has reduced the contract price by an amount in the order of $1.0 million. The consolidation of Cooroy and Woodford STP upgrade projects into a single contract has also delivered a reduction in the lump sum tendered price and should also reduce Unitywater management and procurement costs.

There has, however, been a significant amount of re-design required (inflating the design costs by an estimated 50 percent). This was necessitated by the fact that the original Sunshine Coast Regional Council design allowed for ultimate catchment loading, a proportion of which may never be realised.

In addition, the scheme has also been subject to significant cost variance, with the construction price moving from $12.2 million to $14.7 million. This represents a 20 percent increase in construction costs, which was in excess of the available contingency allowance. This again raises concerns with the detailed design process. It appears that a number of significant elements were not accounted for in the design, despite the project being subject to both design and re-design.

In its Interim Price Monitoring Submission, Unitywater has identified proposed expenditure in respect of the Cooroy STP Upgrade. However, there is significant variance with the actual reported expenditure profile. On this basis it is recommended that the forecast expenditure be re-profiled to reflect the latest expenditure forecasts.

6.3.3 Sippy Downs - Town Centre Trunk Sewer Main (Project Ref No: 11)

The planned Sippy Downs Town Centre is currently an undeveloped greenfield site, located adjacent to the Sunshine Coast University. The site is zoned high density commercial/residential in the Maroochy Plan 2000 planning scheme, with an estimated serviced population of 4,000EP at ultimate development.

In order to encourage development of the site and support a proposed supermarket development, the Sunshine Coast Regional Council passed a resolution directing the then Sunshine Coast Water and subsequently Unitywater, to plan, design and construct a trunk sewer in the catchment to service the entire site.

On the basis that servicing the Sippy Downs Town Centre would generate significant potential developer contributions, as well as encourage commercial development in the area and generate additional economic and employment benefits to the community, as well as Halcrow considers the scheme to be prudent. Whilst work, primarily driven by political influence should not normally be supported as it not necessarily in the customer's interest, the potential developer contributions generated by the delivery of this scheme significantly exceed the forecast outturn cost.

Halcrow considers that Unitywater has adopted a sensible approach to the project, ensuring a gravity solution is provided that is sensitive to the various local environmental issues.

The procurement strategy, which involved the separate procurement of planning/design services, followed by the tender for three separate supply and construct contracts, is not generally efficient as a combined procurement approach, as it results in additional management costs through significant duplication of effort. Whilst Halcrow understands the reasoning for the approach adopted, based on the significant land acquisition and environmental issues that needed to be resolved in order to secure the project scope, it is recommended that other procurement routes should normally be considered in order to ensure the efficient delivery of Unitywater's capital program.

Notwithstanding this, Halcrow still considers the development of the scheme to be efficient. When compared to the identified actual and proposed expenditure reported in the Interim Price Monitoring Submission, there appears to be a 10 percent variance from the forecast 2012/13 expenditure reported in the latest cost report. Whilst, it is recommended that the forecast expenditure be re-profiled to reflect the latest project cost report, Halcrow considers the overall expenditure to be efficient.

6.3.4 Communications Infrastructure Upgrade Program (Project Ref No: 74)

Unitywater currently operates eleven (11) separate SCADA systems that are used to monitor and control the Northern and Southern region sewer and water network assets; there are a total of 871 sites including sewage pump stations, sewer mains, water pump stations and water mains, although not all are currently monitored.

Prior to the formation of Unitywater, Moreton Bay Water and Sunshine Coast Water identified a need for SCADA System and Telemetry Upgrade replacements in their forward capital works programs. The 'Communications Infrastructure Program' (CIP) is part of the SCADA Upgrade Program which includes four sub-projects:

1. SCADA Improvement Program;
2. Switchboard Replacement Program;
3. Instrumentation Replacement Program; and
4. Communications Infrastructure Program.

The deliverables associated with this project (Communications Infrastructure Program) will be construction/upgrade of thirty four (34) communication sites to meet the Network Design Specification which will support the future SCADA system communication requirements.

The project has been subject to ongoing development and extension. Initially, Moreton Bay Regional Council awarded a contract primarily to undertake SCADA network design. At that stage, it was proposed that the network design contractor would subcontract detailed design and construction works, however, Unitywater subsequently excised this role from the scope of works in an endeavour to achieve greater efficiencies. Project delivery has continued to be impacted by delays in the design contractor completing its component of the works.

An initial project budget of $3.8 million (including 10 percent contingency) was adopted in 2010. As a result of extensions to scope (additional sites to be serviced) and a transfer of some responsibilities from the network design contractor to the design and construction (delivery) contractor, the project cost is now estimated at $5.708 million.

Halcrow identifies prudence in undertaking this project as the automated preventative control actions will reduce the likelihood of overflow events (an environmental compliance requirement) and the associated business risks. Furthermore, the project should lead to an overall reduction in operation and maintenance costs which, although not quantified in the information provided, should begin to be realised from 2013/14 onwards. Halcrow therefore considers the project to be prudent.

Unitywater has demonstrated prudence in managing consolidation of existing SCADA projects across former entities. Halcrow recognises that this project is highly complex and bears large timing risks if parts of the project are not executed correctly.

In terms of efficiency, it is difficult to agree the project was initially delivered in the most efficient manner. The project appears to have been subject to a number of changes that have caused issues around timing and costs. Unitywater has, however, on several occasions sought clarifications and adjusted the delivery method to expedite process or achieve costs savings. The decisions made appear to be in the best interest of the project, ensuring efficient delivery as the project progressed.

The expenditure of $3.78 million budgeted in 2010 appears to be based on an efficient estimate. Unitywater has put forward proposed variations amounting to $2 million, however, this amount has not yet been approved by Unitywater management. Some justification of the additional costs has been provided by Unitywater (as identified above), and seems reasonable on the basis that it would have been difficult for Unitywater to have a complete understanding of the scope of a project of this size and complexity in the initial stages. There have been difficulties related to performance of the network design contractor and there have also been issues related to the merging of systems in the northern and southern regions.

On the basis of Unitywater demonstrating that it is constantly tracking and revising budgets and are providing early warning of cost-overruns, the costing process appears to be reasonable. Furthermore, Unitywater has demonstrated flexibility in delivering this complex project. Halcrow therefore considers this project to be efficient.

It is recommended that the expenditure profile shown in Unitywater Interim Price Monitoring Submission is adjusted to reflect the latest project cost estimate (assuming the total variation of approximately $2 million is approved by the Unitywater Board.

6.3.5 Redcliffe Wastewater Pumping Station PS20X (Project Ref No: 178)

Sewage Pumping Station SPS20X, which serves the North Kippa-Ring/Newport catchment, has a design capacity of 30 litres per second; it is hydraulically overloaded. The SPS has a reported history of wet weather overflow events, with three events recorded in the first three months of 2012. Development of the Newport development site, which is currently ongoing, will worsen the hydraulic inadequacy of the SPS. Based on the Redcliffe Catchment Sewerage Network Master Plan (2011), an estimated

ultimate flow of 76 litres per second is forecast for the North Kippa-Ring/ Newport catchment.

On the basis of the existing and forecast levels of growth within the catchment, Unitywater proposes to decommission the existing SPS20X and construct a new SPS on a dedicated site with an associated DN250 rising main.

At the time of review, Halcrow found that the contractor has been on site since May 2012 and construction had commenced in mid August 2012. Installation of the rising main across Hercules Road and construction of the new SPS20X off Kippa Road is ongoing (wet well sunk and emergency storage completed).

On the basis that SPS20X is already under capacity and load within the catchment is forecast to increase as new development comes on line in the Newport area; augmentation and relocation of the SPS and rising main is both necessary and prudent.

Unitywater advised that the project is currently running two months behind schedule, primarily due to difficulty in obtaining access to the new SPS site through a parcel of land owned by Moreton Bay Regional Council. Notwithstanding the above, the project is forecast for completion in late February 2013.

Halcrow reviewed the forecast final costs and noted significant variation (approximately 12 percent increase overall). There has been a significant increase in land acquisition and management costs. Halcrow notes that obtaining permanent access to the new SPS site has been a significant issue for Unitywater, and a $235,000 increase in land related costs relates to the management of these issues. Halcrow also notes that anticipated design costs have increased by a further $230,000, even though flood related variations (as reported by Unitywater in the project summary report) only account for $103,000. The contingency allowance for contract variations has also been reduced from $300,000 to $119,000, despite already incurring two separate construction variations totalling $138,000.

The procurement strategy, which involved the separate procurement of design services, followed by the tender for two separate supply and construct contracts, appears to have delivered some efficiency, with the agreed tender price approximately 30 percent lower than the estimated cost assessed by Unitywater at planning.

Delivery of the project is, however, subject to some further risk, particularly relating to permanent access to the new SPS site. This issue has already incurred additional cost and may further impact on the efficiency of delivery if not resolved soon.

There appears to be significant variance between the forecast 2012/13 expenditure reported in Unitywater's Interim Price Monitoring Submission and the forecast 2012/13 expenditure reported in the latest project cost report. On the basis of the assessment outlined above, it is recommended that the forecast expenditure be re-profiled to reflect the latest project cost report.

6.3.6 Brendale WWTP Upgrade (Stage 3) (Project Ref No: 182)

The Brendale Sewage Treatment Plant (STP) Augmentation Project involves the implementation of minor improvements to the existing Brendale STP in order to delay the need for a major augmentation. The existing STP (which has previously been augmented) was commissioned in 2000 with a design capacity of 30,000EP; through process optimisation and minor works it currently treats approximately 41,500EP and is operating at or close to a point at which the plant will begin to breach conditions of the environmental licence with respect to water quality and odour emissions.

There is likely to be strong growth in industrial and residential developments inside and adjacent to the current catchment, with an estimated ultimate load for an expanded catchment of 77,000EP in 2030.

After an assessment of options, which included an immediate major upgrade of the plant, the identified preferred option for the Brendale STP upgrade involved the diversion of sewage flows from the Brendale catchment to Queensland Urban Utilities (QUU) and undertaking interim works including wet weather bypass, odour control and improvements to recycled water management at the Brendale STP. The 2012 planning report identified an estimated project cost, excluding the infrastructure required to transfer sewage flows to Queensland Urban Utilities, of $12.62 million. Upon award of the contract for construction of the plant upgrade works, the total project cost was revised downwards to $10.94 million. A number of variations, including a reduction arising from re-location of an unused odour control facility an increases associated with electrical, instrumentation and control equipment, has resulted in the current expenditure forecast of $11.73 million.

Unitywater has demonstrated prudence in delivering this project. From the early planning stages, options have been identified that allow expenditure to be appropriately delayed, whilst still meeting obligations and drivers related to growth and compliance.

In regards to efficiency, Unitywater has adopted a flexible delivery approach in order to keep costs down. Whilst it is still unclear as to the exact amount of contingency built into the project (as this is masked by lump sum amounts from contractors), the relatively small allowance (0.7 percent of construction costs) added by Unitywater appears reasonable. Halcrow considers this project to have been delivered efficiently.

It is therefore recommended that the expenditure profile shown in Unitywater's Interim Price Monitoring Submission be adjusted to reflect the most recent project forecast.

6.3.7 Upgrade Woodford Wastewater Treatment Plant (Project Ref No: 186)

Woodford STP is a conventional activated sludge plant that has been in operation for some 34 years. The STP, which has a design capacity of approximately 2,000EP, is currently operating at or near its hydraulic and nutrient load capacity, with an average loading of 1,960EP currently recorded. Unitywater advised that there have been a number of flow limit breaches recorded, whereby the STP has exceeded its environmental licence. Additionally, Woodford is a key growth area, with 70-90 additional lots developed on an annual basis. As the current rate of growth is forecast to continue for the foreseeable future, the frequency of licence failures is also likely to increase.

Based on the current loading levels and the forecast levels of growth within the catchment, Unitywater proposes to incrementally upgrade the existing STP over a number of phased stages. Unitywater will initially utilise the existing STP infrastructure and footprint to construct a new inlet works and clarifier in order to increase the STP capacity to 2,600EP. This will provide sufficient capacity until 2020, following which an irrigation farm will be established with 700EP package plants added in 2021 and 2031, on a needs basis.

Unitywater advised that the scheme was approximately 75 percent complete, with commissioning scheduled to commence in November 2012, and practical completion forecast for February 2013, which is four months later than originally forecast.

On the basis that the Woodford STP is circa 34 years old, is operating near its design hydraulic and nutrient loading capacity and regularly exceeds its environmental discharge licence conditions, upgrade of the STP is both necessary and prudent.

Halcrow considers that Unitywater has adopted a sensible approach to the project, scaling down the initial proposals to provide Class A water, and designing a solution that enables phased delivery of additional treatment process elements, as and when growth within the catchment demands it.

Although subject to additional procurement costs, Halcrow considers the Early Contractor Involvement (ECI) approach to procurement to have been both beneficial and cost effective. By involving a select number of contractors in the project definition phase, a number of innovations have been identified that has reduced the contract price by an amount in the order of $0.22 million. The consolidation of Cooroy and Woodford STP upgrade projects into the same contract has also delivered a reduction in the lump sum tendered price and should also reduce Unitywater management and procurement costs.

The scheme has, however, been subject to some cost variance, with the construction price moving from $8.33 million to $9.42 million. This represents a 13 percent increase in construction costs, which was in excess of the allowed contingency allowance. Design costs of 17.5 percent are also higher than Halcrow would expect for a project of this nature, although it is recognised that the final solution is significantly different to that initially proposed, and as a result has been subject to significant re-design. Savings to other aspects of the project delivery process have, however, resulted in a forecast outturn cost of $13.5 million, which represents a 9 percent reduction in the forecast cost assumed in its Interim Price Monitoring Submission. On this basis, it is recommended that the forecast expenditure be re-profiled to reflect the latest forecast expenditure profile.

6.3.8 Consolidated Asset Management System (CAMS) (Project Ref No: 459)

At the time of formation, Unitywater inherited multiple Asset Management Systems (AMS) from the former Council water service providers (Sunshine Coast Water and Moreton Bay Water) that previously provided functionality to support the individual needs of each provider. Unitywater observed the need for a single comprehensive asset management system that supports organisation-wide asset management. Furthermore, ongoing Council provision of these services under Service Level Agreements (SLAs)

had a defined end date (30 June 2012) after which all ties to the constituent Council systems were to be removed.

The proposed CAMS asset management project involved the review, selection and implementation of a single AMS across Unitywater. The project intent captures the opportunity to improve Unitywater's asset management performance by adopting the best practices from both of its predecessors and other sources; such improvements may be in the form of business processes, systems and/or data management.

In assessing the options available for implementation of its own AMS, Unitywater focussed primarily on assessment of the two legacy systems, 'Maximo' and 'Hansen' which were previously implemented in the northern and southern regions respectively. The benefits of adopting one of the existing systems was identified at an early stage; 'Maximo' was ultimately adopted as it presented the lowest cost option as well as rating slightly better than 'Hansen' on all other evaluation criteria.

Halcrow considers that Unitywater has demonstrated prudence in selecting this project for priority in its capital program; a need for this project is evident. Unitywater has quantified project benefits, identified risks, considered options and conducted procurement in a transparent manner. Halcrow therefore considers undertaking of this project to be prudent.

In terms of efficiency, based on the cross-business interaction, scale and nature of this project, there may have been some difficulty in initiating the project and having complete buy-in from all internal stakeholders. It is recognised that implementation and acceptance of new systems can be a difficult process to manage, however, Unitywater appears to have handled this process reasonably well and thoroughly documented its approach in doing so. On this basis project delivery is considered to be generally efficient.

However, in the absence of a detailed understanding of the scope of each cost item associated with the project, and specifically the changes that have led to the significant variations in cost, it has not been possible to assess efficiency at a detailed level.

The expenditure profile shown in Unitywater Interim Price Monitoring Submission does not appear to correlate with either the Business Case (version 2.1) ($5.630 million) or the most recent forecast provided by Unitywater ($8.7 million). Whilst the need for variations and the fact that the majority have arisen following completion of the design process is understood in principle, in the absence of a detailed breakdown of the associated costs, it is recommended that the expenditure profile be adjusted accordingly.

6.3.9 GIS Establishment (Project Ref No: 460)

The Unitywater GIS Establishment Project (GISEP), which will form part of the broader asset management system and interface with the CAMS project, is designed to deliver an integrated (ie. enterprise-wide) spatial environment and improved spatial data quality. This project is intended to empower Unitywater staff by providing an easy to use spatial environment with associated reliable data to aid quality and timely, effective decision making.

Prior to the GISEP, Unitywater inherited two legacy maintenance management systems which were not well developed and were lacking basic structures. It was recognised that having two different maintenance management systems and processes would result in a fragmented, inconsistent approach to the management of assets, which ultimately leads to inconsistent customer service standards. As well as recognised inefficiencies associated with maintaining both of the legacy systems, these systems were tied to previous Council systems and negotiated Service Level Agreements (SLAs) that had a defined end date (30 June 2012) after which all ties to the constituent Council systems were to be removed

The overall objective of the GISEP project was therefore identified, as follows:

- Build a Unitywater GIS capability to replace legacy systems/applications and address duplication and gaps that Unitywater has inherited from its constituent Councils;
- Improve data quality and standardise business management processes;
- Support the Consolidated Asset Management System (CAMS) project requirement to have a defined set of GIS functionality in place by mid 2012.

Following a detailed assessment of the benefits (tangible and intangible) associated with options including 'do nothing', implementation of a base GIS system only and full implementation of a system incorporating all geospatial components, the full system implementation was adopted. The project is being delivered in two phases; Phase 1 has comprised system implementation, data migration and decommissioning of the legacy systems, whilst Phase 2 will involve data quality improvements and further development/implementation of the enhanced system capabilities.

Halcrow has assessed that Unitywater has demonstrated prudence in selecting this project for priority in years 2011/12 and 2012/13. Full implementation will support and drive efficiency related to core functions of the business. Whilst a project of this nature may have been the subject of more extensively staged implementation at other existing water utilities, Unitywater has captured the opportunity to implement a system that interfaces with much of the organisation, whist simultaneously allowing legacy systems to be decommissioned. The phasing and approach of this project is also logical and reasonable.

Now that Phase 1 is complete (the necessary tools for data management), Halcrow sees the need to immediately follow with implementation of Phase 2 which will see data improvements and process automation. It is following the implementation of Phase 2 that the real efficiency gains for the organisation will be realised. Operating expenditure savings amounting to some $4.4 million have been identified by Unitywater as tangible benefits of this project; it is expected that these will begin to be realised from 2014/15 onwards based on the planned timeframe for full system rollout.

Overall, implementation of this project appears to be efficient. Documentation is clear, options have been assessed and procurement strategies considered. Furthermore, the final outturn cost was significantly lower than expected for Phase 1, a fact which should

be reflected in Unitywater's expenditure proposal; revision of the expenditure included in its Interim Price Monitoring Submission is recommended accordingly.

With the implementation of this project, it is important that monitoring of expected benefits is undertaken. It is recommended that that a process be implemented (monitoring be undertaken) to confirm whether the business is achieving the desired efficiency gains.

6.3.10 System Enhancements & Improvements (Project Ref No: 1182)

The System Enhancements and Improvements program provides a 'vehicle' to promote business improvement and efficiency initiatives that align with the strategic objectives of Unitywater.

For 2012/13, fifteen (15) capital projects have been identified, including two compliance related initiatives and thirteen (13) business improvement/efficiency initiatives, a number of which are 'spend to save' initiatives that will generate a positive return on investment. Overall, a combined twenty four (24) initiatives incurring capital and/or operating expenditure have been proposed for 2012/13.

The System Enhancements and Improvements Program is a disparate grouping of relatively low value initiatives that deliver both business efficiency and compliance related objectives. Halcrow recognises the need for a water business to drive efficiency into its business operation and to seek business improvement, and on this basis consider a 'spend to save' type capital program to be prudent.

However, Halcrow is unsure as to why the compliance based initiatives have been included within this project. Whilst it may be good practice to apply the same level of rigour to these initiatives through the Investment Steering Committee (ISC), the fact that their delivery is mandatory, means they will not have been assessed against the same economic criteria.

Halcrow considers assessment of the efficiency of this program to be quite difficult. At the time of review, the program was still in its infancy and the project scope for each of the initiatives had not yet been adequately defined. Accordingly, the overall costs may be under or overstated. The costs will only become fully apparent as full scopes of work are developed for each initiative. Notwithstanding, as the driver for many of the initiatives is business improvement and efficiency, with the requirement to generate a positive return on investment, the program is likely to be efficient.

Halcrow recognises the benefits of a 'spend to save' type program, however, as there is still some uncertainty over the scope and nature of this program, Halcrow recommends that the budgets and expenditure are carefully monitored as much of the associated capital expenditure is speculative and the funding required could vary considerably from the estimates given.

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified proposed expenditure in respect of the System Enhancements and Improvements Program amounting to $4.791 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with the full $4.791 million ($nominal) forecast for

expenditure in 2012/13. Halcrow is surprised that the entire program is forecast to be delivered in a single year, particularly as the program is still at a very early stage of development. On this basis it may be prudent to spread the forecast expenditure over two years, to provide sufficient opportunity to define and then deliver the program.

6.3.11 Summary

On the basis of the detailed review undertaken in respect of the nine (9) identified projects, Halcrow has recommended that:

- expenditure in respect of four (4) projects be reduced to reflect latest project cost estimates and in one (1) case, re-profiled to reflect the actual and forecast delivery of the project;
- expenditure in respect of one (1) project be reduced to reflect actual outturn cost achieved to date (ie. completion of Phase 1), with a commensurate reduction in contingency allowance for the remaining work (Phase 2);
- expenditure in respect of two (2) projects be increased to reflect latest project cost estimates and in one (1) case, re-profiled to reflect the actual and forecast delivery of the project;
- expenditure in respect of one (1) project be increased to reflect latest project cost estimate, however, forecast additional costs (variations) not be included in the absence of detailed justification; and
- expenditure for one (1) project be re-profiled to reflect the actual and forecast delivery of the project (total forecast expenditure to remain unchanged).

Halcrow's assessment in respect of each sample project is summarised in **Table 6.7**.

Details of the proposed adjustments over the reported period are presented in **Appendix B**.

Table 6.7: Summary of Assessment of Sample Projects

Project Name	Unitywater Project ID	Assessment			2012/13 Expenditure ($'000 nominal)		
		Prudent	Efficient	Comment	Unitywater Proposed	Adjustment	Halcrow Recommended
Mary River Road Cooroy - Cooroy STP Upgrade	2	✓	✓	Reduction to reflect latest project cost estimate; Expenditure re-profiled to reflect actual/expected delivery.	4,356	+2,126	6,482
Sunshine Motorway Sippy Downs - Town Centre Trunk Sewer Main	11	✓	×	Reduction to reflect latest project cost estimate.	3,366	-710	2,658
Communications Infrastructure Upgrade Program	74	✓	✓	Increase to reflect latest project cost estimate.	2,558	+920	3,478
Wastewater pumping station PS20X (78L/s v 15m)	178	✓	✓	Increase to reflect latest project cost estimate; Expenditure re-profiled to reflect actual/expected delivery.	1,906	+1,342	3,248
Brendale WWTP Upgrade (Stage 3)	182	✓	×	Reduction to reflect latest project cost estimate.	1,108	-927	181
Upgrade Woodford Wastewater Treatment Plant	186	✓	×	Reduction to reflect latest project cost estimate.	5,721	-606	5,115
Asset Management System	459	✓	✓	Increase to reflect latest project cost estimate; Forecast additional costs (variations) not included in the absence of detailed justification.	1,362	+298	1,660
GIS Establishment	460	✓	×	Reduction to reflect actual outturn cost achieved to date (Phase 1), with reduction in contingency allowance for remaining work (Phase 2).	3,543	-296	3,247
System Enhancements & Improvements	1182	✓	×	Expenditure re-profiled to reflect actual/expected delivery.	4,792	-2,000	2,792

6.4 Update of Previously Assessed Projects

Halcrow has reviewed, to the extent possible, the current status in respect of projects that have previously been the subject of detailed assessment under the Interim Price Monitoring Program. The review has comprised the following:

- identification of the project and retrieval of information is respect of the following from the 2012/13 Interim Price Monitoring Submission – Data Template (Worksheet 5.6.2):
  - current 'as incurred' actual/forecast expenditure profile (this has been used to determine the '2012/13 Revised Cost'); and
  - current actual/forecast total 'as commissioned' expenditure;
- comparison of the resultant '2012/13 Revised Cost' with the '2011/12 Revised Cost' (as provided by the QCA); and
- assessment of the results of the comparison.

The status of the projects is summarised in **Table C.1** (refer **Appendix C**).

The primary observations made by Halcrow as a result of this assessment are as follows:

- total actual/forecast expenditure reported in 2012/13 is $42.41 million (13.6 percent) less than reported in 2011/12;
- although there is a net reduction in total expenditure, variances have been both positive and negative;
- in some cases, variances have been minimal (in percentage terms), which reflects typical performance, however, in other cases, greater variance (particularly increases in expenditure) warrants further assessment of possible scope change and/or inefficiencies;
- expenditure appears to have been deferred for some larger projects (eg. Kawana STP);
- in one (1) case, it appears that a planned ongoing replacement program (Water Supply Facilities – Switchboard Replacement Program) has been cancelled, or is now otherwise identified;
- there have also been other significant changes in replacement programs with expenditure levels being substantially curtailed, or the program timeframe truncated/accelerated; this may be the result of a change in drivers (policy) or improved knowledge of replacement need;
- notwithstanding the previous comment, the expenditure shown for the Light Vehicle Fleet Replacement program has almost trebled;
- there are two (2) projects shown as being commissioned in 2012/13 and 2013/14 respectively that show further forecast expenditure beyond those years (note that the '2011/12 Revised Cost' showed zero expenditure in both cases, although the projects were not at that stage complete).

Unitywater has confirmed that the following two (2) projects, assessed as part of the 2010/11 Interim Price Monitoring Review, have now been removed from the capital program:[165]

- Water Supply Service Reservoir, Boundary Road Reservoir No 3 (24ML); and
- Water Main WM-NLC (500mm x 2800m) Offtake and supply main from Northern Interconnected Pipeline.

Unitywater advised that these projects, which were to facilitate the supply of water into the Unitywater network, were cancelled following the issue of a revised instruction from the SEQ Grid Manager that supply of water would be supplied via an alternative arrangement.

At the time of writing, Unitywater has not provided any further advice as to the current status of the previously assessed projects, or the reasons for identified variances in expenditure.

6.5 Summary Assessment of Capital Expenditure

6.5.1 Overview

Of the nine (9) projects reviewed in detail, expenditure was generally found to be prudent. Whilst allowances for direct (or base) expenditure were generally found to be efficient, Halcrow found some difficulty in correlating the project cost estimates and adopted variations with the forecasts presented in Unitywater's Interim Price Monitoring Submission and supporting information; in some cases the justification for cost movements was not fully apparent.

More specific observations arising from the review are as follows:

- Based on the sample of schemes reviewed, Halcrow considers that Unitywater is delivering a well justified and broadly efficient capital program. Unitywater has adopted a sensible approach to delivery, whereby the preferred solution often involves phased delivery to ensure additional capacity is provided on an as required basis.
- There was demonstrated evidence of the implementation of Unitywater's capital planning processes, including gateway approval. There was also evidence that approvals of budget variations are generally sought at an early stage. It was apparent that staff involved in the capital planning and delivery process are well informed of the broader program, including the interaction between specific projects and relevance to the organisation.
- It is apparent that Unitywater considers a range of options, including the 'do nothing' option, in its initial project planning. It is also apparent that non preferred options are quickly dismissed, specifically in cases where such options were not really viable (it appears that in some cases these alternatives were only included to show that due process has been followed).

[165] Unitywater, *Draft Halcrow Responses – RFI-2* (attachment to email dated 4 December 2012).

- There was evidence to confirm that Unitywater has considered a number of novel procurement options (eg. combining projects under one contract and utilising early contractor involvement), which has delivered quantifiable efficiencies to the business. However, there were also a number of instances where multiple contracts were procured in order to deliver a single output. Whilst valid reasons support the procurement choices made on those particular occasions, Halcrow considers that this resulted in additional cost to the project due to duplication of activities and recommends that more efficient procurement options are considered for all projects.
- There appears to be a number of legacy projects that have carried over from the Regional Council organisations that preceded Unitywater. Whilst the need for these projects is apparent, significant levels of project planning and re-design has been necessary to ensure a more prudent scope of work is delivered. Whilst this has resulted in additional planning and design costs, over and above what Halcrow would normally expect, it has ensured projects have not been conservatively over-scoped.
- There were a number of instances where an allowance for risk was built into the approved contract budget, and separately allowed for within project contingency. Whilst the allowance may have been moved within the overall budget, there is a risk of potential duplication of costs. On this basis, it may be beneficial to separate project support costs and other allowances from the agreed contract value, in order to provide better transparency of project costs.
- Halcrow found, specifically in respect of projects related to the development of new business support systems, that the justification of project cost movements was not clearly articulated. Whilst the reasoning presented supported additional expenditure in principle (typically increasing cost as the scope of the project was further defined), the detailed scope and costing that supported the change was not readily apparent to Halcrow.
- In the case of the 'System Enhancements and Improvements' project, progress should be monitored to ensure each initiative delivers a positive return on investment. With programs of disparate and as yet undefined initiatives, there is a risk that unjustified projects are hidden within the larger program of work, and delivered despite not being of benefit to the business.
- Ongoing monitoring is also recommended in respect of other 'business system' related projects (eg. the Consolidated Asset Management and GIS Implementation projects) to ensure that assumed benefits are actually realised as the projects are fully implemented.

Halcrow considers that Unitywater has generally adopted a sensible approach to project development, which (in most cases) is based on the business' adopted guidelines. Whilst expenditure was, for the most part deemed efficient, increases in forecast expenditure have not been fully justified in some cases.

6.5.2 Implications for Remainder of Capital Program

Halcrow has considered the validity of applying a further adjustment to the remainder of the forecast capital expenditure program, however, is of the view that this is not appropriate. Adjustments are principally made to reflect the most recent project forecasts based on information provided by Unitywater for the purposes of this review; Halcrow does not consider that it has identified any systemic inefficiency that would justify a program wide adjustment either for 2012/13 or the balance of the forecast period.

6.5.3 Recommended Capital Expenditure

Uniywater's recorded actual and proposed capital expenditure over the period 2010/11 to 2014/15, together with Halcrow's recommended level of capital expenditure, is summarised in **Table 6.8**. Details of the assessment are summarised in **Appendix B**.

Table 6.8: Actual/Forecast and Recommended Capital Expenditure – 2010/11 to 2014/15 ($'000 nominal)

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	126,310	203,414	314,384	212,230	84,975	941,313
Proposed adjustment	-414	-6,495	147	2,000	0	-4,759
Halcrow Recommended Expenditure Profile	125,896	196,919	314,531	214,230	84,975	936,551

It is noted that the total proposed adjustment over the five (5) year period amounts to a reduction of 6.1 percent of the value of the sampled projects, as represented by Unitywater's forecast expenditure profile. The adjustment in 2012/13 amounts to an increase of 0.5 percent.

It is further noted that this assessment relates to 'as incurred' expenditure, and excludes any allowance for capital overhead and borrowing (interest) costs.

7 Conclusions and Recommendations

7.1 Overview

Halcrow's review of Unitywater's operating and capital expenditure has been principally based on information contained in its Interim Price Monitoring Information Return (including Data Template) and information provided by Unitywater in response to formal information requests. Halcrow has also conducted interviews/discussions with Uniywater representatives in order to gain an understanding of its adopted planning processes and the justification for the proposed levels of investment.

From an overall perspective, Unitywater's forecast expenditure for 2012/13 is generally deemed prudent and, for capital works, efficient. Halcrow does, however, have concerns regarding the efficiency of operating expenditure and has proposed a number of adjustments.

7.2 Management Systems and Processes

On the basis of Halcrow's review of Unitywater's management systems and processes, it has made the following observations:

- From an overall perspective, it appears that Unitywater is organised and undertakes functions that are consistent with other water industry distributor-retailer organisations.
- Unitywater's Corporate Planning Framework, which comprises its *Statement of Obligations*, *Strategic Plan* and *Water and Wastewater Network and Services Plan* (Netserv Plan) is substantially in place. Its Netserv Plan is currently in draft form and expected to be finalised before 1 July 2013, as required.
- Unitywater has defined and is beginning to implement the key elements of an effective Asset Management Framework, although the supporting elements of the framework, ie. the strategic plans, and more specifically the Asset Management Plans, are yet to be fully developed. Full development and implementation of these Asset Management Plans is expected to lead to improved planning, thereby leading to greater efficiencies.
- Detailed asset management planning remains dependent upon implementation of key corporate tools that will support the process. The Consolidated Asset Management System (CAMS), together with a fully implemented GIS System, will provide the knowledge base and processes essential to the effective management of infrastructure assets.
- Unitywater's capital planning process, which incorporates 'gateway' reviews at appropriate milestones and a risk-based prioritisation process, appears to be robust. Effective implementation of these processes ensure prudence and efficiency in the development and delivery of the capital program, as generally confirmed by the review of a sample of capital pojects/programs.

- Maintenance planning processes are in place, however, are reliant on the full implementation of the Asset Management System before they can be expected to lead to optimal efficiency. An effective Asset Management System will provide the knowledge base upon which to develop plans comprising a prudent and efficient balance of maintenance types and processes, thereby leading to operational efficiencies and associated cost reductions.
- Several approaches are used in the development of operational budgets. Whilst these approaches are generally consistent with that adopted by other similar water entities, they are yet to be fully informed by effective asset management planning.

In summary, whilst still in development, Unitywater's management systems and approach are generally consistent with other water industry distributor-retailer organisations. Halcrow is of the view that, once fully implemented, these management systems will provide the necessary rigour to ensure prudence and efficiency in respect of Unitywater's expenditure/investment proposals.

7.3 Operating Expenditure

Unitywater's regulated operating expenditure (excluding bulk water) is forecast to increase marginally (+1.7 percent) in nominal terms in 2012/13. This is less than the forecast rate of inflation (2.5 percent), and represents a reduction of 0.8 percent in real terms.

In spite of this achievement, Halcrow is of the view that there is scope for further efficiencies to be achieved. Areas of concern include:

- Whilst the most recent (November 2012) Reserve Bank forecasts of inflation support the adoption of a 3.25 percent general inflation rate, an allowance of 2.75 percent (based on Queensland Treasury forecasts) would have been more appropriate at the time Unitywater's 2012/13 budget (and Interim Price Monitoring Submission) was being prepared.
- Whilst Unitywater has taken major initiatives (including redundancies) to reform its workforce practices and reduce employee expenses, it may not have fully accounted for the benefits to be derived from these initiatives. For example, it has taken action to improve the efficiency of its field services workforce; allowance for some efficiency gain could be expected.
- Even accepting the very substantial (+19.5 percent) increase in the unit cost of electricity supply, an effective increase of 13.9 percent in electricity use far outweighs the forecast increase in either water demand (as indicated by forecast bulk water purchases) or the number of properties to which wastewater services are to be provided.
- Unitywater's corporate costs, as a proportion of total operating expenditure, are considered excessive when compared to benchmarks for similar government owned organisations.

- Whilst the quantum of Other Material and Services expenses are impacted by the reallocation of expenditure previously reported as Contractor expenses in 2012/13, the effective increase (+16.4 percent) in 2012/13 is substantially in excess of what is expected on the basis of escalation and the growth in services.
- Industry level benchmarking indicates that, whilst Unitywater's unit costs of service provision compare favourably with those forecast by Queensland Urban Utilities, they are higher (at an aggregate level) than those incurred by assessed interstate comparators.

On the basis of its observations and analysis, Halcrow recommends a number of adjustments to reflect identified inefficiencies in respect of Employee expenses ($1.28 million), Electricity expenses ($0.72 million), Corporate expenses ($2.50 million) and Other Materials and Services expenses ($2.20 million). In total, Halcrow proposes that a reduction of some $6.70 million in Unitywater's forecast of $143.58 million (excluding bulk water costs) is required to reflect an efficient level of regulated operating expenditure for 2012/13. This represents a downwards adjustment in the order of 4.7 percent.

7.4 Capital Expenditure

On the basis of the detailed review of sample projects, capital expenditure was generally found to be prudent. Whilst allowances for direct (or base) expenditure were generally found to be efficient, Halcrow found some difficulty in correlating the project cost estimates and adopted variations with the forecasts presented in Unitywater's Interim Price Monitoring Submission and supporting information; in some cases the justification for cost movements was not fully apparent.

More specific observations arising from the review are as follows:

- Based on the sample of schemes reviewed, Halcrow considers that Unitywater is delivering a well justified and broadly efficient capital program. Unitywater has adopted a sensible approach to delivery, whereby the preferred solution often involves phased delivery to ensure additional capacity is provided on an as required basis.
- There was demonstrated evidence of the implementation of Unitywater's capital planning processes, including gateway approval. There was also evidence that approvals of budget variations are generally sought at an early stage. It was apparent that staff involved in the capital planning and delivery process are well informed of the broader program, including the interaction between specific projects and relevance to the organisation.
- It is apparent that Unitywater considers a range of options, including the 'do nothing' option, in its initial project planning. It is also apparent that non preferred options are quickly dismissed, specifically in cases where such options were not really viable (it appears that in some cases these alternatives were only included to show that due process has been followed).
- There was evidence to confirm that Unitywater has considered a number of novel procurement options (eg. combining projects under one contract and utilising early

contractor involvement), which has delivered quantifiable efficiencies to the business. However, there were also a number of instances where multiple contracts were procured in order to deliver a single output. Whilst valid reasons support the procurement choices made on those particular occasions, Halcrow considers that this resulted in additional cost to the project due to duplication of activities and recommends that more efficient procurement options are considered for all projects.

- There appears to be a number of legacy projects that have carried over from the Regional Council organisations that preceded Unitywater. Whilst the need for these projects is apparent, significant levels of project planning and re-design has been necessary to ensure a more prudent scope of work is delivered. Whilst this has resulted in additional planning and design costs, over and above what Halcrow would normally expect, it has ensured projects have not been conservatively over-scoped.
- There were a number of instances where an allowance for risk was built into the approved contract budget, and separately allowed for within project contingency. Whilst the allowance may have been moved within the overall budget, there is a risk of potential duplication of costs. On this basis, it may be beneficial to separate project support costs and other allowances from the agreed contract value, in order to provide better transparency of project costs.
- Halcrow found, specifically in respect of projects related to the development of new business support systems, that the justification of project cost movements was not clearly articulated. Whilst the reasoning presented supported additional expenditure in principle (typically increasing cost as the scope of the project was further defined), the detailed scope and costing that supported the change was not readily apparent to Halcrow.
- In the case of the 'System Enhancements and Improvements' project, progress should be monitored to ensure each initiative delivers a positive return on investment. With programs of disparate and as yet undefined initiatives, there is a risk that unjustified projects are hidden within the larger program of work, and delivered despite not being of benefit to the business.
- Ongoing monitoring is also recommended in respect of other 'business system' related projects (eg. the Consolidated Asset Management and GIS Implementation projects) to ensure that assumed benefits are actually realised as the projects are fully implemented.

Halcrow considers that Unitywater has generally adopted a sensible approach to project development, which (in most cases) is based on the business' adopted guidelines. Whilst expenditure was, for the most part deemed efficient, increases in forecast expenditure have not been fully justified in some cases.

On the basis of the detailed review undertaken in respect of the nine (9) identified projects, Halcrow has recommended that:

- expenditure in respect of four (4) projects be reduced to reflect latest project cost estimates and in one (1) case, re-profiled to reflect the actual and forecast delivery of the project;

- expenditure in respect of one (1) project be reduced to reflect actual outturn cost achieved to date (ie. completion of Phase 1), with a commensurate reduction in contingency allowance for the remaining work (Phase 2);
- expenditure in respect of two (2) projects be increased to reflect latest project cost estimates and in one (1) case, re-profiled to reflect the actual and forecast delivery of the project;
- expenditure in respect of one (1) project be increased to reflect latest project cost estimate, however, forecast additional costs (variations) not be included in the absence of detailed justification; and
- expenditure for one (1) project be re-profiled to reflect the actual and forecast delivery of the project (total forecast expenditure to remain unchanged).

Total proposed adjustments amount to a reduction of $4.51 million (5.8 percent of the value of the sampled projects) over the five (5) year period. The adjustment in 2012/13 amounts to an increase of $0.39 million (1.4 percent of the value of the sampled projects).

Given the basis of the adjustments, Halcrow does not consider it valid to extrapolate these adjustments across the remainder of the capital program.

Appendix A. Capital Project Summaries – Detailed Review

A.1 Mary River Road, Cooroy - Cooroy STP Upgrade (Project Ref No: 2)

A.1.1 Project Description

The Cooroy Sewage Treatment Plant (STP), which has been in operation for circa 40 years, is a traditional trickling filter treatment plant that discharges to the Mary River, a sensitive waterway. The STP, which has a design capacity of 4,000EP, is currently operating beyond its hydraulic and nutrient load capacity, with an average loading of 4,400EP currently recorded. Unitywater advised that the STP regularly exceeds its environmental discharge licence and, in the 12 months from July 2009 to June 2010, the Cooroy STP recorded 125 breaches of licence conditions, including 12 flow non-conformances, 100 BOD non-conformances, 2 Suspended Solids non-conformances and 11 Dissolved Oxygen non-conformances. Each of these breaches were notifiable events, which were reported to the Department of Environment and Resource Management (DERM). As a result of these infringements, Unitywater was required by DERM to prepare a Transitional Environmental Program (TEP), which provided an undertaking to upgrade the existing STP.

Prior to the formation of Unitywater, the Sunshine Coast Regional Council (SCRC) engaged consultants to prepare a planning report with a recommended option and, subsequently, prepare a design and supporting documentation suitable for a Design Bid Build (DBB) contract to upgrade the plant. The design allowed for an ultimate catchment loading of 9,000EP; this was subsequently reviewed following the formation of Unitywater and resulted in a reduction in the design loading to 6,250EP.

On the basis of the forecast levels of growth within the catchment, Unitywater proposes to incrementally upgrade the existing STP over two stages; by initially constructing a low energy oxidation ditch treatment process with a design capacity of 6,250EP, and then adding an additional clarifier at a later date, in order to increase the capacity to 9,250EP.

Delivery of the proposed solution will enable the STP to meet the new environmental discharge licence issued by DERM for Cooroy STP. The licence requires that the nutrient concentrations in "*effluent from the augmented plant are less than 3mg/L for Total Nitrogen (TN) and less than 0.3 mg/L for Total Phosphorous (TP)*". Based on current flows this will reduce the TN being discharged from 7.8 tonnes per annum to approximately 600 kilogram.

A.1.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- *2012/13 Price Monitoring Review; Request for Information Halcrow01; Unitywater Response*, 9 October 2012;
- *Cooroy STP – Planning Study*, January 2009;
- *Cooroy STP Upgrade – Major Business Case*, Nov ember 2010;
- *Cooroy STP Upgrade – Concept Design Report*, Jul y 2010;
- *Cooroy STP Upgrade – Significant Procurement Plan*, 31 February 2011;

- *Cooroy STP Upgrade – Project Schedule*, August 2012
- *Cooroy STP Upgrade – Cost Report*, August 2012.

A.1.3 Key Drivers and Obligations

The primary drivers for investment are compliance, growth and maintenance.

As highlighted above, the STP regularly exceeds its environmental discharge licence conditions. Additionally, the new environmental discharge licence requires a better quality effluent to be produced by the new facility. On this basis, effluent quality compliance is the key driver for investment.

The Cooroy STP has been operating beyond its design hydraulic and nutrient loading capacity of 4,000EP. A current average loading rate of 4,400EP is currently recorded, with growth within the catchment forecast to ultimately reach 9,000EP.

Additionally, the Cooroy STP is circa 40 years old, with the associated mechanical and electrical equipment nearing the end of its design life. On this basis, the STP is in need of base maintenance expenditure in order to maintain performance.

A.1.4 Solution Development

The capacity and performance of the Cooroy STP has been an ongoing issue for Unitywater and its predecessor organisation, SCRC. In 2009, a planning report was prepared by consultants who identified a number of options to provide additional treatment capacity at Cooroy and recommended construction of an oxidation ditch to provide treatment capacity for an ultimate design loading of 9,000 EP. Consultants were subsequently engaged to prepare a design and supporting documentation suitable for a DBB contract.

Following the formation of Unitywater in May 2010, Unitywater engineers undertook a review of the proposed options, summarised below. Each option was assessed against a multi-criteria analysis and refined design criteria:

- Option 1 – Construct the low energy oxidation ditch approved by SCRC in accordance with the recommendations of the consultant's planning report.
- Option 1a – Apply revised design criteria to Option 1 (ie. reduced EP), and amend the design using an Early Contractor Involvement (ECI) procurement model.
- Option 2 – Pump the sewage from Cooroy to the Noosa Coastal Sewage Treatment Plant.
- Option 3 – Construct a new treatment plant using a modular 'Package Treatment' system incorporating carbon dosing system.
- Option 4 – Construct a new treatment plant using a modular 'Package Treatment' system incorporating an effluent irrigation system to reduce the quantity of nitrogen discharged to the environment.
- Option 5 – Reduce the 'Wimmers' trade waste discharge to the STP, stop all future development and do not upgrade the plant.

The option analysis completed by Unitywater found that Options 2 and 4 had significantly higher capital and operating costs than other options considered. It also found that whilst Options 1 and 3 had similar capital and whole of life costs, Option 1a indicated the best whole of life solution that will reliably meet the effluent discharge licence conditions. Implementing Option 5 did not guarantee the plant would meet its existing licence conditions and was not considered further.

On the basis of the above assessment, Unitywater has opted to deliver Option 1a with an initial capacity of 6,250EP (staged to ultimately provide treatment to 9,250EP), with the following broad scope of works proposed:

- Upgrade of Inlet Works;
- Construction of new Oxidation Ditch;
- Construction of Balance Tank and Anaerobic Tank;
- Provision of Clear water contact tank and Service water storage tank;
- Construction of a single Clarifier with RAS PS, with provision made for additional Clarifier if required.;
- Provision of chemical dosing facilities;
- Provision of Sludge Handling facilities; and
- Provision of Odour control facilities

Within the development of the business case, Unitywater has also developed a detailed risk register and sought to identify and mitigate any risks to project delivery.

A.1.5 Project Delivery

In order to introduce economies of scale and deliver the planned upgrade as efficiently as possible, Unitywater opted to procure the upgrade of Cooroy STP concurrently with another similar STP upgrade (Woodford STP), under the same contract. They also opted for an Early Contractor Involvement (ECI) procurement process in order to benefit from innovation available from the market.

Following a detailed procurement process, whereby seventeen respondents to the initial 'Expression of Interest' (which was based on the original design) were reduced to a shortlist of six preferred tenderers, three contractors were ultimately selected to take part in the ECI process. Halcrow found that the ECI process, which took place prior to the formal procurement process, generated circa $0.9 million in estimated savings, as a result of the following cost saving innovations:

- A more compact design was proposed, reducing the footprint of the STP;
- Reductions in pipework, through a more efficient layout;
- A different access arrangement, reducing the amount of road works required; and
- Use of a double barrel GRP chlorine contact pipe in lieu of a large concrete chlorine contact tank.

On completion of the ECI process, the tender documents were modified to include the various innovations, and the three ECI participants were then required to submit separate lump sum tender prices for each site, and a combined, discounted price for both sites. A lump sum price of $12.193 million was accepted for upgrade of the Cooroy STP, which included a $0.55 million discount for securing the contract for both sites. The successful tenderer's price was significantly lower than the other two tenderers.

At the time of review, Unitywater advised that the scheme was approximately 80 percent complete, with progress against each key aspect of the project as summarised below:

- Civil & Structural Work – 70% complete;
- Mechanical & Electrical Installation – 65% complete;
- Pipework – 90% complete;
- Control & Instrumentation – 50% complete; and
- Security Fencing/Road works/Landscaping – 0% complete.

Halcrow was advised that commissioning was scheduled to commence in November 2012, with practical completion forecast for December 2012, which is one month later than originally forecast.

A.1.6 Cost Estimate

As highlighted above, a lump sum construction cost of $12.193 million was agreed with the successful contractor to deliver the upgrade of Cooroy STP. The contract value was subsequently adjusted to include for additional scope creep, on account that provision had not been made in the original contract for the demolition and removal of the original STP which is located adjacent to the new site. As a result of this, the contracted construction cost escalated to $13.080 million.

In addition to the lump sum contract price, the budget was also adjusted to allow for design cost (~12 percent), other Unitywater management costs (~14 percent) and a 7 percent contingency allowance. As the project has progressed, budgeted costs have been subject to further variation, as shown in **Table A.1** and summarised below.

Table A.1: Project Budget and Forecast Final Cost - Mary River Road, Cooroy - Cooroy STP Upgrade

Project Activity	Whole of Life Budget Cost	% of Total Budget Cost	Forecast Final Cost	% of Total Forecast Final Cost
A. Project Management	$2,202,088	11.4%	$1,610,535	8.3%
B. Land/Authority Approvals	$17,568	0.1%	$17,568	0.1%
C. Design	$2,222,958	11.5%	$2,710,184	14.0%
D. Construction	$13,080,112	67.6%	$14,654,713	75.4%
E. Commissioning	$476,542	2.5%	$434,508	2.2%
F. Contingencies	$1,336,016	6.9%	$0	0.0%
Total Project Cost	$19,335,284	100.0%	$19,427,509	100.0%

Halcrow reviewed the forecast final costs and noted significant variation, particularly around the construction and design activities. Halcrow notes that the project has been subject to a number of potentially significant variations that have further impacted on the final construction cost (absorbing the 7 percent contingency allowance), due primarily to a discrepancy over the allowable curing time for the oxidation ditch, balancing and anaerobic tanks. Additionally, the design costs have escalated further to account for the additional design required to incorporate demolition of the existing works into the scope of work.

Design costs of 14 percent are higher than Halcrow would expect for a project of this nature, however, acknowledges that this is due to the fact the scheme has effectively been re-designed to account for the revised design criteria (from that initially designed by SCRC) and the incorporation of additional scope element. However, to counter this, the management costs are lower than expected, reflecting the consolidation of project management activities in the delivery of the two schemes under the same contract.

At the time of review, expenditure in the order of $14.6 million had been incurred to date, which is consistent with the reported physical progress of the scheme.

A.1.7 Implications for Operating Expenditure

Whilst the impact on operating expenditure is not directly quantified within Unitywater's project proposals, the scheme is primarily driven by the need to ensure additional treatment capacity is provided to ensure compliance against its environmental discharge licence conditions and to cater for predicted levels of growth within the catchment. Whilst upgrade of the works to treat additional demand on the sewerage system will incur additional power and chemical costs, there will be a corresponding reduction in the number of, process failures and compliance breaches that would require remedial operator action.

A.1.8 Assessment of Prudence and Efficiency

On the basis that Cooroy STP is circa 40 years old, is operating beyond its design loading capacity and regularly exceeds its environmental discharge licence conditions, upgrade of the STP is both necessary and prudent.

Halcrow considers that Unitywater has adopted a sensible approach to the project, designing a solution that enables phased delivery of additional treatment process elements, as and when growth within the catchment demands it. There has, however, been a significant amount of re-design required (inflating the design costs by an estimated 50 percent). This was necessitated by the fact the original SCRC design allowed for ultimate catchment loading, a proportion of which may never be realised. In addition, Unitywater has undertaken a Net Present Value (NPV) analysis which accounted for whole of life costs as well as the capital cost, and the final solution had the lowest initial capital cost and lowest ongoing operating expenditure. It is worth noting, however, that the NPV analysis was based on a discount rate over 20 years of 9.88 percent, which is significantly higher than Halcrow has seen applied by other companies on similar financial assessments (typically 6 percent).

Although subject to additional procurement costs, Halcrow considers the ECI approach to procurement to have been both beneficial and cost effective. By involving a select number of contractors in the project definition phase, Unitywater has identified a number of innovations that has reduced the contract price by an amount in the order of $1.0 million. The consolidation of the Cooroy and Woodford STP upgrade projects into a single contract has also delivered a reduction in the lump sum tendered price and should also reduce Unitywater management and procurement costs.

The contracted cost of constructing the scheme has, however, been subject to significant cost variance, with the construction price moving from $12.2 million to $14.7 million. This represents a 20 percent increase in construction costs, which was in excess of the available contingency allowance. This raises concerns with the detailed design process. It appears that a number of significant elements were not accounted for in the design, despite the project being subject to both design and re-design.

A.1.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the Cooroy STP Upgrade project amounting to $20.218 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $4.356 million ($nominal) forecast in 2012/13; the total project cost is reported as $20.665 million ($nominal). The proposed expenditure profile is shown in **Table A.2**.

Table A.2: Actual and Forecast Capital Expenditure ($'000 nominal) - Mary River Road, Cooroy - Cooroy STP Upgrade

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	1,936	13,926	4,356	0	0	20,218
Proposed adjustment	-	-3,062	+2,126	-	-	-936
Halcrow Recommended Expenditure Profile	1,936	10,864	6,482	0	0	19,282

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

On the basis of the assessment outlined above, it is recommended that the forecast expenditure be re-profiled to reflect the latest forecast, noting that the total project cost is now forecast to be $19.428 million ($0.145 million was incurred prior to 2010/11). The proposed adjustment is as shown in **Table A.2**; Halcrow does not consider further efficiency adjustments to be appropriate.

A.2 Sippy Downs - Town Centre Trunk Sewer Main (Project Ref No: 11)

A.2.1 Project Description

The planned Sippy Downs Town Centre is currently an undeveloped greenfield site, located adjacent to the Sunshine Coast University. The site is zoned high density commercial/residential in the Maroochy Plan 2000 planning scheme, with an estimated serviced population of 4,000EP at ultimate development.

In order to encourage development of the site and support a proposed supermarket development, the Sunshine Coast Regional Council (SCRC) passed a resolution directing the then Sunshine Coast Water and subsequently Unitywater, to plan, design and construct a trunk sewer in the catchment to connect to existing infrastructure and service the entire site.

A.2.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- *2012/13 Price Monitoring Review; Request for Information Halcrow; Unitywater Response; Sippy Downs Town Centre Trunk Sewer*, 11 October 2012;
- *Sippy Downs Town Centre – Project Description Statement*, 13 July 2011;
- *Sippy Downs Town Centre – Contract Recommendation and Approval Report Trunk Main Sewer*, 20 May 2011;
- *Sippy Downs Town Centre – Contract Recommendation and Approval Report Supply of HDPE pipeline*, 20 May 2011;
- *Sippy Downs Town Centre – Contract Recommendation and Approval Report Jacking Pipe Supply*, 20 May 2011;
- *Sippy Downs Town Centre – SCRC Resolution requesting construction of sewer*, 7 May 2010;
- *Sippy Downs Town Centre – Project Risk Assessment*, September 2011; and
- *Sippy Downs Town Centre – Project Cost Report*, September 2012.

A.2.3 Key Drivers and Obligations

Whilst Unitywater identifies growth as the primary driver for investment, Halcrow considers (on the basis of the information provided) that the regional economy is the underlying driver for this investment.

As highlighted above, the Sippy Downs Town Centre is a prime development site with potential to serve a population of circa 4,000EP, however, the work is not being driven by developer demand, as would normally be the case. SCRC believes that a fully serviced Sippy Downs Town Centre would encourage commercial development in the area and generate additional economic and employment benefits to the community, and on this basis has directed Unitywater to undertake the work in advance of any growth driven development.

A.2.4 Solution Development

As part of the project planning process, Unitywater has developed and assessed a number of options, including:

- Option 1 – Do Nothing – Would contradict SCRC directive and delay development and receipt of infrastructure charges;
- Option 2 – Non Asset Solution – Use of road tankers to transfer waste (not a long term sustainable solution);
- Option 3 – Gravity Sewer in Town Centre – Gravity sewer along northern boundary of catchment. Some limitations due to need to pass through an environmentally sensitive area, which is habitat to the 'Acid Frog';
- Option 4 – Gravity Sewer within the Sunshine Coast Motorway easement – Access denied by Department of Transport and Main Roads; and
- Option 5 – Pumped Solution – Counter-intuitive to readily available gravity option.

Due to the fact that the majority of the options were unacceptable (Option 1), unavailable (Option 4), or not cost effective (Options 2 & 5), a detailed option analysis was not necessary.

On the basis of the above, Unitywater has opted to deliver Option 3 – Gravity Sewer in Town Centre, with the following scope of work proposed:

- 1.74 kilometres of DN250, DN315, DN400, DN500 and DN630 HDPE sewer; and
- 350 metres tunnelled section to pass beneath the identified sensitive 'Acid Frog' habitat.

A.2.5 Project Delivery

As the project required significant land acquisitions and environmental authorisations before it could proceed, a significant amount of detailed design was undertaken during the planning phase. As a consequence, the main pipe laying contract was tendered on a construct only basis. In addition to this, Unitywater separately procured the actual HDPE pipe through a separate 'pipe supply' contract and also separately tendered for the pipe jacking (tunnelled section) of the project.

Halcrow reviewed the 'contract recommendation and approval reports' prepared by Unitywater for each of the three separate contracts and confirm that the lowest compliant price was accepted for each of the contracts. In summary:

- a lump sum price of $2.333 million was accepted for the construction of 1.74 kilometres of HDPE pipeline of varying diameter;
- a lump sum price of $0.164 million was accepted for the supply, delivery and unloading of 1.74 kilometres of HDPE pipeline of varying diameter; and
- a quotation of $0.058 million was accepted to pipe jack 350 metres of HDPE pipe beneath an environmentally sensitive 'Acid Frog' habitat.

The prices were exclusive of GST and Unitywater overheads, and approximately 50 percent lower than the estimated cost assessed at planning.

At the time of review, Halcrow found that the pipeline contractor had mobilised and was undertaking site establishment work. Halcrow reviewed the latest project cost report (September 2012), and found that planning, detailed design and land acquisition had been completed and the actual pipes had been supplied. A project completion date of 31 March 2013 was anticipated.

A.2.6 Cost Estimate

As highlighted above, a combined contract value of $2.555 million was agreed with three contractors to supply and construct the gravity trunk sewer to Sippy Downs Town Centre. The contract value was subsequently adjusted to include for identified risks and other costs. As a result of this, the contracted supply and construct cost was initially set at $2.852 million.

In addition, to the combined contract prices, the budget was also adjusted up to $3.364 million to include for planning costs, design costs, Unitywater management costs and a 4.3 percent contingency allowance. As the project has progressed, budgeted costs have been subject to further variation, as summarised in **Table A.3**.

Table A.3: Approved Project Budget and Forecast Final Cost - Sippy Downs - Town Centre Trunk Sewer Main

Activity	Approved Budget	% of Approved Budget	Forecast Final Cost	% of Forecast Final Cost
Project Management	$122,240	3.6%	$ 148,889	4.4%
Land/Authority/Approvals	$67,911	2.0%	$32,661	1.0%
Design	$176,569	5.2%	$39,105	1.2%
Construction	$2,852,265	84.8%	$2,604,690	77.4%
Commissioning	$0	0.0%	$363	0.0%
Contingencies	$144,854	4.3%	$300,000	8.9%
Planning	$0	0.0%	$237,958	7.1%
Total	$3,363,839	100.0%	$3,363,665	100.0%

Halcrow reviewed the forecast final costs and noted significant variation, particularly around the planning and contingency activities. It is noted that due to the land acquisitions and environmental authorisations required before the project could proceed, a significant amount of detailed design was undertaken during the planning phase, hence the movement in expenditure from design to planning.

It also appears that the allowance for risk initially included in the construction estimate has been moved to the contingency activity. Based on the environmental sensitivity of the site and need to tunnel part of the route, Halcrow considers a 9 percent forecast allowance for contingency to be reasonable.

At the time of review, expenditure of approximately $0.704 million had been incurred to date. Whilst there has been limited physical activity on site, the expenditure would appear to be excessive, however, Halcrow confirms that the expenditure includes the extensive planning work completed and supply of the pipes.

A.2.7 Implications for Operating Expenditure

Whilst the impact on operating expenditure is not directly quantified within Unitywater's proposals, the delivery of the overall project will result in additional operational expenditure associated with the provision of 1.74 kilometres of new infrastructure.

However, the provision of infrastructure in order to service a greenfield development site will generate additional income for Unitywater through potential developer contributions, which Unitywater estimate will be in the order of $20 million over the life of the development.

A.2.8 Assessment of Prudence and Efficiency

On the basis that servicing the Sippy Downs Town Centre would encourage commercial development in the area and generate additional economic and employment benefits to the community, as well as generating significant potential developer contributions, Halcrow considers the scheme to be prudent. Whilst work, primarily driven by political influence should not normally be supported as it not necessarily in the customer's interest, the potential developer contributions generated by the delivery of this scheme significantly exceed the forecast outturn cost.

Halcrow considers that Unitywater has adopted a sensible approach to the project, ensuring a gravity solution is provided that is sensitive to the various local environmental issues.

The procurement strategy, which involved the separate procurement of planning/design services, followed by the tender for three separate supply and construct contracts, is not generally as efficient as a combined procurement approach, as it results in additional management costs through significant duplication. Whilst Halcrow understands the reasoning for the approach adopted, based on the significant land acquisition and environmental issues that needed to be resolved in order to secure the project scope, it is recommended that other procurement routes should normally be considered in order to ensure the efficient delivery of Unitywater's capital program.

Notwithstanding this, and on the basis of the forecast cost breakdown summarised above, Halcrow consider the development of the scheme to be efficient.

A.2.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the Sippy Downs - Town Centre Trunk Sewer Main project amounting to $4.208 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $3.366 million ($nominal) forecast in 2012/13; the total project cost is reported as $4.212 million ($nominal). The proposed expenditure profile is shown in **Table A.4**.

Table A.4: Actual and Forecast Capital Expenditure ($'000 nominal) - Sippy Downs - Town Centre Trunk Sewer Main

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	61	781	3,366	0	0	4,208
Proposed adjustment	-61	-75	-710	-	-	-844
Halcrow Recommended Expenditure Profile	0	706	2,658	0	0	3,364

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

Even taking into account the capital overhead and borrowing costs added to all capital expenditure by Unitywater, there appears to be a 10 percent variance between the forecast 2012/13 expenditure reported in Unitywater's Interim Price Monitoring Submission and the forecast 2012/13 expenditure reported in the latest cost report.

On the basis of the assessment outlined above, it is recommended that the forecast expenditure be re-profiled to reflect the latest forecast reported by the Project Manager. The proposed adjustment is as shown in **Table A.4**; Halcrow does not consider further efficiency adjustments to be appropriate.

A.3 Communications Infrastructure Upgrade Program (Project Ref No: 74)

A.3.1 Project Description

Unitywater currently operates eleven (11) separate SCADA systems that are used to monitor and control the Northern and Southern region sewer and water network assets; there are a total of 871 sites, although not all are currently monitored. These assets include sewage pump stations, sewer mains, water pump stations and water mains spanning the former Redcliffe, Pine, Caboolture, Caloundra, Maroochy and Noosa Council (Moreton Bay and Sunshine Coast Regional Council) areas. Most of the legacy systems are approaching the end of their serviceable life.[166]

Prior to the formation of Unitywater, Moreton Bay Water and Sunshine Coast Water identified a need for SCADA System and Telemetry Upgrade replacements in their forward capital works programs. The utilities collaborated with the aim of installing identical SCADA systems in both regions. Once Unitywater was formed, the SCADA program, budget, scope and schedule were consolidated across both regions into one program.

The 'Communications Infrastructure Program' (CIP) is part of the SCADA Upgrade Program which includes four sub-projects:

1. SCADA Improvement Program;
2. Switchboard Replacement Program;
3. Instrumentation Replacement Program; and
4. Communications Infrastructure Program.

The deliverables associated with this project will be construction/upgrade of thirty four (34) communication sites to meet the Network Design Specification which will support the future SCADA system communication requirements. Completion of the Communication Infrastructure project will enable the SCADA Upgrade contractor to undertake upgrade works to all outstations required under their contract. Once the communications sites are constructed, the two microwave rings will provide redundant high speed communications between most repeater locations. Additional repeater locations are connected to either ring using microwave or UHF spurs. Individual backhaul networks have been created for the northern and southern regions allowing the networks to be segregated in the future if required. Both networks are to be redundantly linked using microwave and fibre connections.

A.3.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

[166] Unitywater, *2012/13 Price Monitoring Review, Request for Information Halcrow01, Unitywater Response*, 9 October 2012.

- Unitywater, *2012/13 Price Monitoring Review, Request for Information Halcrow01, Unitywater Response*, 9 October 2012;
- Moreton Bay Regional Council, *Co-ordination Committee Meeting*, 11 August 2009;
- Unitywater, *SCADA Project Brief, SCADA and Telemetry System Upgrade Northern and Southern Regions, MBW 08 -118 & SCW 303601*, 28 October 2010; and
- Unitywater, *2012/13 Price Monitoring Review Response to Request for Information 01, Attachment J QCA Responses*, circa August 2012.

A.3.3 Key Drivers and Obligations

The CIP is one component of the SCADA Upgrade Program.

According to Unitywater, the need for the overall SCADA Upgrade Program was identified by Moreton Bay Regional Council (MBRC) prior to Unitywater being formed. MBRC identified the following drivers:

- *To comply with and satisfy elements of the EPA approved Environmental Management Plan of 7 January 2005;*
- *To increase system capacity to provide remote monitoring to (low risk) sites not monitored by current SCADA systems and to cater for future increases in site numbers;*
- *To provide automated preventative control actions that will reduce the likelihood of overflow events;*
- *To reduce operational and maintenance costs by providing a common and robust SCADA system servicing water and sewer networks in Redcliffe and Caboolture districts with facility to integrate the Pine System. This will enable the establishment of an effective single control centre for the entire region;*
- *To assist in effective asset management by providing accurate recording and secure storage of process data that can be readily retrieved and analysed, and*
- *To facilitate future integration of operations and maintenance functions with Sunshine Coast Regional Council networks and SCADA systems.*

Unitywater has advised that drivers for the overall SCADA Upgrade Program apply to the CIP.

During interviews, Unitywater outlined how the failure of wastewater infrastructure caused various spills which resulted in fines for the previous Caboolture Shire Council. A commitment at the time was made to the EPA that closer monitoring of infrastructure issues via undertaking manual monitoring would be undertaken. As manual monitoring is expensive, labour intensive and presents health and safety risks, remote monitoring using SCADA equipment was considered more appropriate.

Halcrow agrees in principle with the need for a SCADA upgrade.[167] Since the formation of Unitywater, drivers that align with Unitywater strategic goals and objectives have not been updated (noting the consolidation of other aspects including program, budget and scope). This is unusual given the program stretches across the former Sunshine Coast Water jurisdiction.

[167] Historical details regarding maintenance and failure of problem infrastructure were not reviewed.

Appropriate drivers consistent with organisational goals and objectives form the base of any project. From the information reviewed, it appears the rollout of the CIP has no focus on Unitywater, but is rather a legacy commitment. Evidence of this is shown in the 2010 SCADA brief which stated "*the project delivery approach and drivers differed slightly in each region*".

A.3.4 Solution Development

In 2007 expressions of interest were sought in relation to the Caboolture district upgrade works. The initial Tender Specification for the SCADA and Telemetry Upgrade works associated with districts of the newly formed MBRC was awarded in 2008 for an amount of $4,254,751 (excluding GST).[168] The successful contractor's primary responsibility was for SCADA network design.

The network design specification developed by the network design contractor provides the location of the required communications sites, with details regarding the minimum antennae heights required to enable network communication. The scope at each site varies with some sites being Unitywater owned with the communication equipment to be installed on the water tower structures, through to third party owned sites and a complete installation being undertaken including the installation of a new pole. The network design identified the use of Unitywater communication owned sites as a priority (where possible) as this presented lower cost and low risk options.

It is understood from discussions with Unitywater that the SCADA network designers initially subcontracted design and construction. As this arrangement did not appear to be as efficient as possible, Unitywater went to market for a design and construct contract at one site (known as Barber Road Reservoir). A 'delivery' (design and construct) contract was awarded to undertake the design and construction of a telemetry tower at Barber Road Reservoir. The contract contained an option to undertake work at additional sites under the schedule of rates arrangement.

From the information reviewed and interviews, it appears that the network design contractor is essentially driving the network design and project schedule, whilst the delivery contractor is now responsible for the design and construction of individual communications sites.

A.3.5 Project Delivery

With the formation of Unitywater the total SCADA upgrade project was estimated to cost some $32 million (up from $29.9 million prior to Unitywater formation) and was divided into four components (as described in **Section A.3.1**).

The CIP rollout at this time was expected to take 2 years with forecast cost expectations for the business of $3.8 million as detailed in the 2010 SCADA project brief. The brief outlined previous issues of fragmented delivery (due to the merging of previous utilities) and proposed scope change, rescheduling, revised timeframes, exclusions and cost changes.

[168] The network design contractor's scope related to the broader SCADA Upgrade Program and not solely to the Communications Infrastructure Program.

Unitywater expressed concern during interviews that delivery of this project is slower than first anticipated and scheduled, as the network design contractor is behind schedule. Any delay in the network design schedule results in a delay to the communications infrastructure project as the network design is the first input for the communications site detailed design.

Unitywater refers to works periphery to the core SCADA contracts, but necessary for the complete implementation, as 'enabling works'. The 'enabling works' are generally related to the network design contracts and switchboard replacement (other SCADA components). According to Unitywater, building 'enabling works' into the SCADA upgrade contracts by way of variation to the existing contracts removes a potentially difficult project interface. This approach increases the likelihood of delivering the works on schedule and within budget.

It is unclear whether there are actually any 'enabling works' undertaken as part of the CIP or whether there has been any material benefit undertaking these (ie. it may have just cost loaded the project). The 2010 SCADA brief noted that "*delaying the deployment of the Microwave network and new repeater installations is considered to present the least risk option but greatest loss of opportunity to Unitywater whilst remaining within budget constraints*". Presumably based on this comment, delays should have little to no cost impact on the project.

Multiple revisions of project due dates have taken place in this project which makes delivery difficult to keep track of. In the 2010 project brief, the forecast completion date was November 2012. The latest integrated schedule states the new forecasted completion date is June 2013. According to Unitywater "*the integrated schedule is updated weekly and is constantly changing as a result of the network design delays. The design delays can be attributed to a number of issues, the most significant being the assumption of site viability. An update to the forecast is currently underway for the Q1 budget review*".

Halcrow is not surprised with the time difficulty delivering this project. At the time of Unitywater formation, the project would have had multiple parties working with a single network design contractor. The contractor has also needed to adjust to suit Unitywater's new structure. Unitywater demonstrated prudence in trying to manage issues associated with project change.

A.3.6 Cost Estimate

The formation of Unitywater in July 2010 saw consolidation of previous water utility SCADA projects into a single project, with an initial budget of $3.8 million to be spent over 2010/11 and 2011/12 on the CIP project.

Based on Unitywater documentation for this review, $1,154,409 has been expended to date on the CIP, with a further $4,553,825 being required to achieve completion. Total forecasted expenditure is $5,708,234. A summary of how expenditure forecasts have changed over time is presented as **Table A.5**.

Table A.5: Communication Upgrade Project - Budget forecast comparison ($million nominal)

Total Project Estimations	Initial estimate Southern Region (MBRC)	Initial estimate Northern Region (SWRC)	2010 Business case	2012 Information Pack for Halcrow
Communication Infrastructure	1.9	-	3.40	
Contingency			0.38 (10%)	
Total	1.9	Not identified	3.78	5.71

The information reviewed included itemised costs as proposed in 2010 business case as presented in **Table A.6**. A reasonable contingency amount of 10 percent was included for the project. Design costs represented some $520,000 or 13 percent of the project. Although this appears to be on the higher side of what design costs may be expected to be, given the detailed interlinking between communication sites, higher design costs are warranted.

Table A.6: Communication Upgrade Project - itemised costs as proposed in 2010 business case ($nominal)

Project Component	Scope	Procurement	Budget
Communication Huts	Supply Installation & Commissioning of New Communication Huts of 6 Sites	PO	$220,000
Water Tower Refurbishment	Communication room refurbishment of 5 sites	PO	$100,000
Initial Design	Design of Communication Infrastructure of 2 sites	PO	$100,000
Initial Construction	Construction of Communication Infrastructure of 2 sites	Contract	$300,000
Full Design	Design of Communication Infrastructure of 10 sites	Strategic Procurement Plan	$350,000
Full Construction	Construction of Communication Infrastructure of 10 sites	Strategic Procurement Plan	$1,550,000
Pt Cartright Hut	Design and Construction of Pt Cartright Communication Hut	Contract	$100,000
Mt Coolum Solar Panels	Additional Solar Panels to be added to enabling operation of the site for an extended 6 months	PO	$20,000
Design - North South Microwave Link	Design of Communication Infrastructure of North South Link of 2 sites	PO	$70,000
Construction - North South Microwave Link	Construction of Communication Infrastructure of North South Link of 2 sites	Strategic Procurement Plan	$350,000
Project Resources	Project Resources including internal Staff and External Project Management	Internal Staff & PO	$276,000
Risk Contingency	*10% Contingency*		*$343,600*
TOTAL			$3,779,600

In the information pack provided to Halcrow, Unitywater has identified that the delivery contract requires a variation of $1.532 million to include the high-level communication scope removed from the network design contract and to address additional communications accommodation requirements and improved scope definition. According to Unitywater, this additional work (combined with communications site works) is necessary to complete the communications network by February 2013. This schedule of rates contract was originally let for $219,200 for one communications tower site (Barber Road reservoir, as discussed above). Unitywater has, however, delegated authorisation of $2.15 million for additional tower and ancillary site works to the delivery contractor. The contract effects are summarised in **Table A.7**.

Table A.7: Communication Upgrade Project – movement in Value of Delivery Contract

Contract Element	Amount
Original Contract Sum	$ 219,266
Approved Schedule of Rates	$ 2,150,000
Variation	$ 1,532,050
Total Contract	$ 3,901,316

The key features of the delivery contract variation involved re-estimation to complete unbudgeted scope at 38 communications sites. From the information reviewed, it is difficult to determine whether cost associated with each item delivered under the delivery (design and construct) contract is represents good cost value. However given the contractor's detailed involvement, the knowledge and expertise they bring to the project, Halcrow understands how it can be considered important for Unitywater to maintain this relationship to ensure minimal further disruption.

Unitywater has provided information related to the forecast budget estimate of $5.7 million nominal for the CIP program. At the time of writing this report, expenditure beyond $3.8 million was not yet approved by the Board of Unitywater. Unitywater has estimated that, due to the project taking longer than initially anticipated, additional budget is required is required for project management, design, construction and contingency.

The largest variation is for construction at additional site (and associated scope), which amounts to additional expenditure of $1.3 million on top of the original $2.6 million, as shown in **Table A.8**. The contingency increase appears to be related to the possible inclusion of three additional sites. Given the resultant increase in the required timeframe for the project, (although not ideal) additional budget is required for project management.

Table A.8: Estimated Change to Approved Budget Estimates

Project Element	Type	Scope	Budget Estimate	Approved Budget	Variance	Comments
Project Resources	Actual	Project Resources including internal Staff and External Project Management Internal Staff & PO	$119,431	$276,000	$153,831	Variance is due to elongation of schedule from original
	Estimate	Project Resources including internal Staff and External Project Management Internal Staff & PO	$310,400			
	Subtotal		$429,831			
Land Authority	Actual	Actual costs to date	$1,301	$0	$1,301	Not identified in original budget
	Subtotal		$1,301			
Design	Actual	Design of Tower pack 1	$83,275	$520,000	$122,150	Variance is due to addition of sites and scope definition.
	Estimate	Design of 9 complete communications sites	$265,725			
	Estimate	Design of modifications to 25 existing communications sites	$293,150			
	Subtotal		$642,150			
Construction	Actual	Refurbishment of WTs and Supply and Installation of 6 communications buildings	$572,705	$2,640,000	$1,301,227	Variance is due to addition of sites and scope definition.
	Estimate	Supply and installation of 9 complete communications sites	$1,642,949			
	Estimate	Supply and installation of modifications to 25 existing communications sites	$1,725,573			
	Subtotal		$3,941,227			
Contingency	Estimate	General Contingency @ 5%	$250,725	$343,600	$350,125	Scope definition and risk identification
	Estimate	Viewland Drive redesign/new site	$113,000			
	Estimate	Buderim new site	$132,000			
	Estimate	Noosaville new site	$198,000			
	Subtotal		$693,725			
Total			$5,708,234	$3,779,600	$1,928,634	

In the documentation reviewed, a breakdown was also given of work scope to be transferred from the network design contract to the delivery contract; this represents some $733,000 of expenditure. Justification of the additional works (totalling $1.8 million) required is presented in **Table A.9**. Expenditure related to survey,

extension of antenna heights, additional antenna poles/mounts, feeder length changes, earthing design and commissioning for the additional works appears reasonable. It is also noted that cost associated with local government approvals were included in the original estimate, however, subsequently excluded from the approved budget; hence included as additional work to be undertaken by the delivery contractor.

Table A.9: Additional Works required under Delivery Contract

	No of sites affected	Initial estimate under delivery contract for the sites	New estimate for the sites	Total increase in estimate	Comments
Survey set out & location of existing services	20	$0	$2,200	$44,000	Was not included in initial estimate other than at new tower sites
QA documentation/all testing commissioning required	20	$0	$950	$19,000	Was not included in initial estimate other than at new tower sites
Building installation instead of Rital enclosure	7	$15,000	$40,500	$178,500	Scope has changed due to quotations received for Rital enclosures. Approx $10K difference between building and cabinet.
Radar Hill increase in feeder cable length	1	$22,650	$61,082	$38,432	Initial estimate based on 20 metres, aerial height as per design is at 90 metres.
Margate WT increase in feeder cable length	1	$20,118	$30,541	$10,423	Initial estimate based on 20 metres, aerial height as per design is at 42 metres.
Changes in feeder lengths to match tower heights				$27,500	Review of each site conducted in relation to design.
Bongaree refurb now building installation	1	$15,000	$40,500	$25,500	There is no room within water tower
Electrical supply	13	$0	$3,938	$51,188	Electrical supplies were not included in initial estimate where building only was to be installed
Additional pole for Pooh Hill (Dayboro Rpt)	1	$45,080	$161,500	$116,420	Was not included in initial estimate
LG application costs	19	$0	$5000 - $12000	$165,000	Was noted that LG costs were excluded and would be charged at cost +7% in the tender but not included in the estimate
Landscaping	12	$0	$10,000	$130,000	Was not included in initial estimate
Removal of pole/building	2	$0	$15,000	$30,000	Was not included in initial estimate

	No of sites affected	Initial estimate under delivery contract for the sites	New estimate for the sites	Total increase in estimate	Comments
Design and Certification of Antenna mounts	33	$0	$2,800	$92,400	Scope transferred from design contractor to delivery contractor
Installation of Antenna Mounts and antennas	33	$0	$3,600	$118,800	Scope transferred from design contractor to delivery contractor
Earthing Design and testing	34	$0	$2,150	$73,100	Scope transferred from design contractor to delivery contractor
Earthing installation	34	$0	$5,000	$170,000	Scope transferred from design contractor to delivery contractor
Commissioning of Antennas	38	$0	$4,200	$159,600	Scope transferred from design contractor to delivery contractor. For each microwave link
Structural Analysis of pole and new loadings	24	$0	$5,000	$120,000	Scope transferred from design contractor to delivery contractor
Total Change in Contract estimate				$1,569,863	
Total Project estimate increase				$1,778,963	

On the basis of the information provided, the additional work covering thirty eight (38) sites appears reasonable. It must, however, be noted that the need for/scope of work at individual sites has not been assessed; only the need for the project as-a-whole.

A.3.7 Implications for Operating Expenditure

No information related to implications on operating expenditure was reviewed. It is, however, noted that this project will bring maintenance and labour savings associated with manual checks and measurements that would otherwise be undertaken by a staff member in the field. Although it is not possible to quantify these savings based on the information provided, Halcrow anticipates that that they should begin to be realised from 2013/14 onwards.

A.3.8 Assessment of Prudence and Efficiency

The drivers for this project are related to the Unitywater's SCADA project. Although there is no clear connect with Unitywater strategic goals and objectives, Halcrow see prudence in undertaking this project as the automated preventative control actions that will reduce the likelihood of overflow events, will help achieve compliance with elements of the *EPA approved Environmental Management Plan of 7 January 2005*,[169] which will reduce overall regulatory risk for the business. As the project will provide remote monitoring, occupational health and safety risks will be reduced. Furthermore the

[169] Not provided for review

project should lead to an overall reduction in operation and maintenance costs. Halcrow therefore considers the project to be prudent.

Unitywater has demonstrated prudence in managing consolidation of SCADA projects across former entities. Halcrow recognises that this project is highly complex and bears large timing risks if parts of the project are not executed correctly.

In terms of efficiency, it is difficult to agree the project was initially delivered in the most efficient manner. The project appears to have been subject to a number of changes that have caused issues around timing and costs. Unitywater has, however, on several occasions sought clarifications and adjusted the delivery method to expedite process or achieve costs savings. The decisions made appear to have been in the best interest of the project (at that point in time), ensuring efficient delivery as the project progressed.

Expenditure related to the $3.78 million budgeted in 2010 appears to be an efficient estimate. Unitywater has put forward proposed variations amounting to $2 million, however, this amount has not yet been approved by Unitywater management. Some justification of the additional costs has been provided by Unitywater, and seems reasonable on the basis that it would have been difficult for Unitywater to have a complete understanding of the scope of a project of this size and complexity in the initial stages. There have been difficulties related to performance of the network design contractor and there have also been issues related to the merging of systems in the northern and southern regions.

On the basis of Unitywater demonstrating that it is constantly tracking and revising budgets and is providing early warning of cost-overruns, the costing process appears to be reasonable. Furthermore, Unitywater has demonstrated flexibility in order to ensure delivery of this complex project. Halcrow therefore considers this project to be efficient.

Given that additional expenditure has not yet been approved by the Board and there has been no expenditure against contingency to date, it would be reasonable to limit the contingency to the original forecast amount of $343,600 which would encourage efficiency and tighter monitoring of all other project aspects. The scope (and cost) of the project has been revised several times, contracts amended and the organisation should have now have a good understanding of itemised costs at this point in the project. Should additional sites be required, there would still be $343,000 available for use.

A.3.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the Communications Infrastructure Upgrade Program amounting to $4.780 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $2.558 million ($nominal) forecast in 2012/13; the total project cost is reported as $4.790 million ($nominal). The proposed expenditure profile is shown in **Table A.10**.

Table A.10: Actual and Forecast Capital Expenditure ($'000 nominal) - Communications Infrastructure Upgrade Program

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	143	2,079	2,558	0	0	4,780
Proposed adjustment	-	-	+920	-	-	+920
Halcrow Recommended Expenditure Profile	143	2,079	3,478	0	0	5,700

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

On the basis of the assessment outlined above, it is recommended that the expenditure be revised as shown in **Table A.10**. The adjustment reflects the latest project cost estimate (assuming the total variation of approximately $2 million is approved by the Unitywater Board).

A.4 Redcliffe Wastewater Pumping Station PS20X (Project Ref No: 178)

A.4.1 Project Description

Sewage Pumping Station SPS20X, which serves north Kippa-Ring and the Newport 'greenfield' development area, is located on a 'nature strip' on Kippa Road, adjacent to two properties in a residential area.

SPS20X, which has a design capacity of 30 litres per second, is hydraulically overloaded. The SPS has a reported history of wet weather overflow events, with three events recorded in the first three months of 2012. Development of the Newport site, which is currently ongoing, will worsen the hydraulic inadequacy of the SPS. Based on the Redcliffe Catchment Sewerage Network Master Plan (2011), an estimated ultimate flow of 76 litres per second is forecast for the North Kippa-Ring/Newport catchment.

On the basis of the existing and forecast levels of growth within the catchment, Unitywater proposes to decommission the existing SPS20X and construct a new SPS on a dedicated site with an associated DN250 rising main.

A.4.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- *2012/13 Price Monitoring Review; Request for Information Halcrow01; Unitywater Response*, 13 October 2012;
- *Redcliffe SPS20x– Project Description Statement*, 13 July 2011;
- *Redcliffe SPS20x – Contract Recommendation and Approval Report SPS and RM*, 20 May 2011;
- *Redcliffe SPS20x – RFQ Recommendation and Approval Report Supply of Pipes and Fittings*, 20 May 2011;
- *Redcliffe SPS20x – Sewerage Network Master Plan*, January 2011; and
- *Redcliffe SPS20x – Project Cost Report*, September 2012.

A.4.3 Key Drivers and Obligations

Unitywater identifies growth as the primary driver for investment, the majority of which is occurring in the Newport area.

Additionally, the project is also driven by the need to remain compliant with the Queensland Government's Planning Guidelines for Water Supply and Sewerage, where there is a requirement to size sewerage infrastructure for future flows and to provide 4 hours ADWF storage at all SPS.

A.4.4 Solution Development

As part of the project planning process, Unitywater has developed and assessed a number of options, including:

- Option 1 – Do nothing – Option discounted as 'do nothing' would increase the risk of overflow, and SPS would not comply with guidelines for sewerage infrastructure.
- Option 2 – Non-asset solutions – Option discounted as Inflow and Infiltration reduction is not considered sufficient to create additional capacity to meet future loads.
- Option 3 – Construct new sewage pumping station along Hercules Road and retain existing SPS20X. Option discounted as it would result in higher operation and maintenance costs and goes against the Unitywater policy of rationalising sewerage assets.
- Option 4 – Decommission existing SPS-RED020 (SPS20X) and construct a single new sewage pumping station. This option would provide additional capacity to meet future needs and reduce operation and maintenance costs.

Due to the fact the majority of the options were unacceptable (Option 1), unfeasible (Option 2), or not cost effective (Option 3), a detailed option analysis was not considered necessary.

On the basis of the above, Unitywater has opted to deliver Option 4 – Decommission existing SPS-RED020 (SPS20X) and construct a single new SPS, with the following scope of work proposed:

- Construct a new 76 litre per second capacity SPS20X on a dedicated site;
- Construct an emergency storage tank such that no less than four hours of emergency storage is available;
- Construct a new 480 metre long DN250 rising main linking the new station to the existing gravity trunk network;
- Construct a new gravity sewer linking the existing sewerage network to the new pump station; and
- Decommission the existing SPS20X located in the roadway.

A.4.5 Project Delivery

As the project required significant land acquisitions and environmental authorisations before it could proceed, a significant amount of detailed design was undertaken during the planning phase. As a consequence, the main contract was tendered on a construct only basis through a selective tender process (tenders invited from three panel contractors). In addition to this, Unitywater separately procured the actual pipe through a separate 'pipe supply' contract, again tendered on a selective basis.

Halcrow reviewed the 'contract recommendation and approval reports' prepared by Unitywater for both contracts and confirm that the lowest compliant price was accepted for each of the contracts. In summary:

- a lump sum price of $2.449 million was accepted for construction of the new SPS20X and associated rising main; and

- a lump sum price of $0.086 million was accepted for the supply and delivery of pipes and fittings.

The prices were exclusive of GST and Unitywater overheads, and approximately 30 percent lower than the estimated cost assessed by Unitywater at planning.

At the time of review, Halcrow found that the contractor has been on site since May 2012 and that construction had commenced in mid August 2012. Installation of the rising main across Hercules Road and construction of the new SPS20X off Kippa Road is ongoing (wet well sunk and emergency storage completed). Connection to the gravity sewer has not yet commenced.

Unitywater advised that the project is currently running two months behind schedule, primarily due to difficulty in obtaining access to the new SPS site through a parcel of land owned by Moreton Bay Regional Council. Notwithstanding the above, the project is forecast for completion in late February 2013.

A.4.6 Cost Estimate

As highlighted above, a combined contract value of $2.535 million was agreed with two contractors to supply and construct the new SPS20X and rising main. The contract value was subsequently adjusted to include for identified risks and other costs. As a result of this, the contracted supply and construct cost was initially set at $2.878 million.

In addition to the combined contract prices, the budget was also adjusted up to $3.673 million to include for planning costs, design costs, Unitywater management costs and an 8 percent contingency allowance. As the project has progressed, budgeted costs have been subject to further variation, as summarised in **Table A.11**.

Table A.11: Approved Project Budget and Forecast Final Cost - Redcliffe Wastewater Pumping Station PS20X

Activity	Approved Budget	% of Approved Budget	Forecast Final Cost	% of Forecast Final Cost
Project Management	$195,376	5.3%	$283,906	6.9%
Land/Authority/Approvals	$35,043	1.0%	$270,960	6.6%
Design	$246,615	6.7%	$478,354	11.7%
Construction	$2,878,393	78.4%	$2,555,240	62.3%
Commissioning	$18,000	0.5%	$33,763	0.8%
Contingencies	$300,099	8.2%	$118,927	2.9%
Risk Allowance	$0	0.0%	$358,210	8.7%
Total	$3,673,526	100.0%	$4,099,359	100.0%

Halcrow reviewed the forecast final costs and noted significant variation (in the order of 12 percent increase overall). It appears that the risk allowance has been removed from the construction estimate and separately identified.

In addition, there has been a significant increase in land acquisition and management costs. Halcrow notes that obtaining permanent access to the new SPS site has been a significant issue for Unitywater, and the $235,000 increase in land related costs relates to the management of this issue. There appears, however, to be a duplication in the associated costs, as the separated risk allowance also relates to the resolution of this issue.

Halcrow also notes that anticipated design costs have increased by $230,000, in order to account for revised flood levels following the 2010 floods in South East Queensland. Halcrow queries the magnitude of the variance, as flood related variations (as reported by Unitywater in the project summary report) only account for $103,000.

The contingency allowance for contract variations has also been reduced from $300,000 to $119,000, despite already incurring two separate construction variations totalling $138,000.

At the time of review, expenditure of approximately $1.1 million had been incurred to date, which is consistent with the reported physical progress of the scheme.

A.4.7 Implications for Operating Expenditure

Whilst the impact on operating expenditure is not directly quantified within Unitywater's proposals, replacement of the existing SPS20X with a new SPS with greater capacity is likely to result in slightly higher power costs. However, the provision of increased capacity will reduce the risk of failure and in-system surcharge, thereby generating potential savings as a result of reduced reactive maintenance. Furthermore, the increased capacity will enable further development in the Newport 'greenfield' development site and generate additional income for Unitywater through potential developer contributions.

A.4.8 Assessment of Prudence and Efficiency

On the basis that SPS20X is already under capacity and load within the catchment is forecast to increase as new development comes on line in the Newport area; augmentation and relocation of the SPS and rising main is considered to be both necessary and prudent.

The procurement strategy, which involved the separate procurement of design services followed by tendering for separate supply and construct contracts, appears to have delivered some efficiency, with the agreed tender price approximately 30 percent lower than the estimated cost assessed by Unitywater at planning.

Delivery of the project is, however, subject to some further risk, particularly relating to permanent access to the new SPS site. This issue has already incurred additional cost and may further impact on the efficiency of delivery if not resolved soon.

A.4.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the Redcliffe Wastewater Pumping Station PS20X project amounting to $3,883 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $1,906 million ($nominal) forecast in 2012/13; the total project cost is reported as $4.108 million ($nominal). The proposed expenditure profile is shown in **Table A.12**.

Table A.12: Actual and Forecast Capital Expenditure ($'000 nominal) - Redcliffe Wastewater Pumping Station PS20X

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	353	1,623	1,906	0	0	3,883
Proposed adjustment	-1,125		+1,342	-	-	+217
Halcrow Recommended Expenditure Profile	851		3,248	0	0	4,100

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

Even taking into account the capital overhead and borrowing costs added to all capital expenditure by Unitywater, there appears to be a significant variance between the forecast 2012/13 expenditure reported in Unitywater's Interim Price Monitoring Submission and the forecast 2012/13 expenditure reported in the latest cost report, due to the delay to the program.

On the basis of the assessment outlined above, it is recommended that the forecast expenditure be re-profiled to reflect the latest project cost report. The proposed adjustment is as shown in **Table A.12**.

A.5 Brendale WWTP Upgrade (Stage 3) (Project Ref No: 182)

A.5.1 Project Description

The Brendale Sewage Treatment Plant (STP) Augmentation Project involves the implementation of minor improvements to the existing Brendale STP in order to delay the need for a major augmentation. This project is now referred to as 'Brendale STP Augmentation Stage 3'.

The original extended aeration STP at Brendale was commissioned in 1978 with a design capacity of 10,000EP. The plant was subsequently upgraded in 1990 with Queensland's first biological nutrient reduction process to serve 20,000EP. The existing STP was commissioned in 2000 with a design capacity of 30,000EP; through process optimisation and minor works it currently treats approximately 41,500EP and is operating at or close to a point at which the plant will begin to breach conditions of the environmental licence with respect to water quality and odour emissions.[170]

There are some plant difficulties associated with:

- Discharge of effluent to a freshwater reach of the South Pine River, which is an ephemeral stream upstream of the discharge point. The effluent outfall contributes the majority of nutrient load to the South Pine River, particularly during dry years. The current license limits the connected load to 50,000EP and restricts dry weather discharge through the outfall to the South Pine River to 12.75 megalitres per day (ML/d).[171]
- The current configuration of the plant results in the Class B recycled water supplied to six local customers not being compliant from time to time and requiring the temporary cessation of supply to customers. These customers pay a nominal tariff that does not cover the cost of production.

There is likely to be strong growth in industrial and residential developments inside and adjacent to the current catchment, with an estimated ultimate load for an expanded catchment of 77,000EP in 2030. Growth has been confirmed by reference to Moreton Bay Regional Council's growth projections and those of the Queensland Government's Population Investigation and Forecasting Unit.

To continue to treat sewage and discharge effluent in accordance with the current environmental licence, it will be necessary to either augment the existing STP or reduce the load on the STP within six to nine months. Should this not be possible, Unitywater may have to cap connections to the STP to avoid breach of the environmental licence.[172]

The preferred option for the Brendale STP upgrade involved the diversion of sewage flows from the Brendale catchment to Queensland Urban Utilities (QUU) and

[170] Unitywater, *2012/13 Price Monitoring Review Response to Request for Information Halcrow01 Brendale STP Augmentation Project*, 9 October 2012.

[171] Ibid.

[172] Ibid.

undertaking interim works including wet weather bypass, odour control and improvements to recycled water management at the Brendale STP.

A.5.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- Unitywater, *2012/13 Price Monitoring Review Response to Request for Information Halcrow01; Brendale STP Augmentation Project*, 9 October 2012;
- *Brendale WWTP Existing Plant Upgrade, for Unitywater*, July 2010;
- Unitywater, *Brendale Sewage Treatment Plant Needs Analysis, for decision*, 21 October 2010;
- *Brendale Sewage Treatment Plant Upgrade Needs Analysis Report*, dated circa October 2010;
- *Brendale Business Case, for decision*, dated 21 December 2010; and
- *Major Projects Monthly Report, Brendale STP Augmentation, Monthly Project Report*, August 2012.

A.5.3 Key Drivers and Obligations

The major drivers of this project, as identified by Unitywater, are:

- Growth – To meet the increasing population in the catchment;
- Compliance – To meet compliance requirements in respect of odour control, effluent discharge, plant bypass flow facility and recycled water quality;
- Renewals – Refurbishing some elements of the treatment plant clarifiers and sand filters.

Halcrow observes that the drivers for this project are well defined, which has led to the development of a suitable solution.

A.5.4 Solution Development

Investigations related to Brendale STP date back to February 2009 when a consultant prepared a report titled *Review of Brendale WWTP Upgrading Options (Stage 3)*, for Moreton Bay Water.[173] Three options were considered in this report, with the preference to immediately divert part of the Brendale catchment to the Brisbane City Council system (Luggage Point WWTP catchment). This would have reduced the load on Brendale STP to approximately 30,000EP, which would have given the plant some respite in the short term.

With the formation of Unitywater in July 2010, the consultant provided Unitywater (the new asset owner) with a report describing issues at Brendale STP.[174] A strategy was put forward to divert water to the Luggage Point WWTP catchment, and the report confirmed that, on the basis of recent population estimates, the plant should have enough capacity to delay upgrade until 2016, providing some essential improvements were undertaken. Improvements listed at this early stage were:

[173] Report not provided for review.

[174] *Brendale WWTP Existing Plant Upgrade, for Unitywater*, July 2010.

- construction of a bioreactor bypass;
- new discharge point to cater for PWWF;
- refurbishment of Clarifier 1;
- phasing out chlorine detention lagoon and instead using new UV disinfection system;
- replacing the existing filter sand and repairing the underdrainage system;
- upgrading the recycled water system by providing improved disinfection and a new storage;
- modifying the existing chlorination system to enable chlorination of the filtered and UV disinfected water prior to discharge to the Backwash/Filtered Water Storage;
- providing new pumps to pump the filtered UV disinfected water to the Recycled Water Storage;
- providing a new 1.5 megalitre (ML) Recycled Water Storage, located on flood free land to the south of the transmission easement; and
- providing a new odour control facility including covers for the Inlet Works and Sludge Handling Facility.

During July and October 2010, Unitywater sought and received draft agreement from Queensland Urban Utilities to divert and treat flows at its Luggage Point Sewage Treatment Plant.

The benefits associated with the proposed diversion and upgrade works include:

- The selected option allows for deferral of a major plant upgrade that would otherwise be required immediately. More specifically, it allows for deferral of $55 million in capital expenditure for a minimum of five years and, if QUU agrees (to its involvement), for much longer period.
- The selected option doesn't require a development approval.
- Development within the catchment will not be constrained.
- Compliance with current odour and water quality conditions of the existing plant environmental licence and the recycled water guidelines will be improved.
- Odour control system equipment that will be installed will still be suitable for use after the next augmentation, ie. it will not become redundant.
- Reduced exposure to risks that will eventuate if this project is not implemented.

In October 2010, Unitywater developed a needs analysis report which identified options that would satisfy growth projections of the catchment. The committee that assessed the business needs also supported odour control, recycled water and compliance improvements associated with the proposal, however, indicated that a business case was required to justify that future expenditure was prudent and efficient. It was recognised in the needs report that, with the formation of Unitywater, the Brendale STP options

needed to be reassessed as part of the business case, as the project was subject to an entirely new set of business and financial constraints.

The business case saw assessment of the options shown in **Table A.13**. Options A, B and C are consistent across early investigations, through the business needs identification and business case development phases.

Table A.13: Options Assessed in Business Case

Options	Advantages	Disadvantages
Option A Diversion of PS 260 to QUU network and undertaking "Interim Works" upgrade to Brendale STP to address compliance needs including wet weather bypass, disinfection, recycled water storage and odour controls.	▪ Defers $55M in capital expenditure ▪ Can be delivered in a timeframe so that development in the catchment is not constrained. ▪ This option doesn't require a development approval. ▪ Improves compliance with current odour and water conditions of the licence and the recycled water guidelines. ▪ Odour controls will be installed on equipment that will still be in use after the next augmentation, i.e. will not become redundant.	▪ Relies on QUU taking and treating additional effluent from sewage pumping PS 260 for a minimum 5 year period. [Note subsequent to this assessment an agreement between QUU and Unitywater has been finalised for a five year period]
Option A1 As per Option A with the exception that no odour control works are undertaken at the Brendale STP.	▪ Lowest capital cost option, saving approximately $4.9 M in addition to the savings identified for Option A.	▪ Exposes Unitywater to a high risk of public complaint, subsequent regulatory action and loss of reputation.
Option B Major augmentation of Brendale STP as soon as possible plus augmentation of the Jinker Track rising main	▪ Allows Unitywater to continue treating all wastewater generated in the Brendale catchment until 2016.	▪ High capital cost ▪ Delays to development likely whist planning approvals obtained and plant constructed ▪ Would require development approval for material change of use. ▪ Approval from DERM not assured and will most likely involve the requirement to increase recycled water use.
Option C Diversion of PS 230 towards the Murrumba Downs STP catchment and "Interim Works" upgrade to Brendale STP.	▪ Allows Unitywater to make use of spare capacity at the Murrumba Downs STP until 2016. ▪ Avoids costs associated with QUU taking and treating additional waste. ▪ Can be delivered more quickly than Option B. ▪ The main could be used for wastewater transfer from the Strathpine TOD redevelopment in the future.	▪ Very high capital cost ▪ Complex approvals processes with crossing of railway, main road and the Pine River. ▪ Will take up to two years to deliver.

The business case identified that the preferred option should generally satisfy the following broad objectives:

- Load to be reduced on the STP within nine months to reduce risk of non-compliance and allow for development in the catchment;
- Continuing compliance with the environmental licence, including odour;
- Reducing the risk of non-compliance with the recycled water guidelines; and
- Provide suitable time (greater than two years) to obtain a development approval for the next capacity upgrade of Brendale STP.

Option A1 did not fully satisfy all the objectives as modelling and observations indicate that the current plant does not satisfy its environmental licence in relation to odour, however, it does offer a significant cost saving. Option B did not fully satisfy the timeframe objectives as it may delay local development. The option involves a major capacity upgrade of the STP to commence as soon as possible. This option was examined to determine if there would be any financial benefit in delaying development in the STP catchment for 12 to 18 months while the major upgrade was designed, constructed and commissioned.

After applying financial NPV analysis it was found that Option A1 achieved the lowest NPV over 20 years, with the highest Internal Rate of Return (IRR). This was closely followed by Option A.

Option A was therefore selected as the preferred solution based on constructability, redundancy, capacity, performance to achieve discharge licence and value for money. Option A achieved a balance of the lower level of risk of breach of the environmental licence and the second lowest NPV of least cost long run marginal cost over a 20 year planning horizon including terminal value.

The selection process appears to have been appropriate and well executed. Furthermore the solution development is cognisant of drivers and is prudent.

A.5.5 Project Delivery

Unitywater initially planned to deliver this project by 'design-bid-build'. The delivery model was revised in the form of a "hybrid EPCM model", with Unitywater project managing individual Design and Construct packages. This delivery method was considered more appropriate by Unitywater as constructing multiple packages on a brown-field sewage treatment plant was seen as too complex for a single contractor.

A consultant was initially engaged to conduct detail design on all packages, and remained engaged to undertake preliminary investigation and prepare concept designs for the design and construction packages undertaken by individual contractors, as well as providing design support during construction. According to Unitywater, this delivery model also provided the benefit of reducing the overheads which would have been associated with a single principal contractor overseeing multiple sub-contractors. It also ensured that the specialist contractors would develop the detailed design of their own

work packages.[175] Halcrow considers this approach to be reasonable and appropriate for this project.

Construction work was carried out by awarding individual principal contractor contracts, with overall project management handled by Unitywater. A number of other project resources were employed as required.

Overall, delivery appears to be on-schedule apart from delivery of the inlet step screens; this activity has a 24-26 week delay and installation may therefore not be completed within project timeframe. Unitywater has flagged that this needs to be discussed with procurement and operations on whether it can be funded and managed outside this project. This approach seems reasonable.

A.5.6 Cost Estimate

The cost of the upgrade works proposed by the planning study consultant in 2010 was initially estimated at $12.0 million. This cost estimate was 'judgement based' and included various overhead allowances as a percentage of direct cost, including contractor's margin and overheads (15 percent), contractor's management and administration (7 percent), detailed design (15 percent) and a contingency (25 percent). The cost of the bypass works was estimated to be $2,560,000. This cost estimate seemed reasonable for this early stage of works.

The $18.546 million budget reported in the Needs Analysis Report[176] was originally established by the former Moreton Bay Water; it determined a preliminary scope of works which was subsequently approved in the 2010/11 budget.

Expenditure totalling $12.621 million[177] for upgrade of Brendale STP was included in revised 3-year Budgets presented to the Unitywater Board in early 2011. **Table A.14** provides a summary of expenditure at 30 September 2012.

Several variations totalling $787,320 have been required, as detailed in **Table A.14**. Positively, there was a reduction in expenditure associated with the odour control facilities. One of the larger variations is for the Electrical Instrumentation and Controls; this will result in forecast additional expenditure of $250,000, which is 43.6 percent more than originally anticipated.

Unitywater has provided detail on each variation. Given the efficient planning approach Unitywater has demonstrated for this project, and assuming work associated with variations was not covered in the original contract sum, if the additional works are necessary to allow the project to as function as planned, then variation works are considered reasonable.

[175] Unitywater, *2012/13 Price Monitoring Review Response to Request for Information Halcrow01 Brendale STP Augmentation Project*, 9 October 2012.

[176] Unitywater, *Brendale Sewage Treatment Plant Needs Analysis, for decision*, 21 October 2010.

[177] This excludes and amount of $2.83 million nominal for the temporary diversion to QUU (as this is a separate project) such that the total cost of the Brendale STP upgrade and diversion projects would be $15.451 million over two years.

Table A.14: Project Cost Information

Element	Planning Report Estimate 2010	Contract	Actual to date	Variations^
Diversion to QUU	$2,830,000	$0	$0	$0
1.6ML Recycled Water Storage Tank	$1,540,000	$1,318,800	$1,567,820	$249,020
Sludge Storage Hopper and Conveyors	$0	$1,444,980	$1,444,980	$0
Refurbishment of Secondary Clarifier 1	$380,000	$243,820	$442,928	$199,108
UV Disinfection System	$1,750,000	$1,403,068	$1,587,258	$184,190
Odour Control Facilities	$4,900,000	$1,071,343	$967,745	-$103,598
Chlorine Disinfection System	$230,000	$333,659	$333,659	$0
Electrical Instrumentation and Controls	$0.00	$573,650	$823,650	$250,000
Inlet Works and Bypass Pipeline	$2,850,000	$1,841,351	$1,843,812	$2,461
Refurbishment of Filters	$230,000	$139,950	$146,088	$6,138
Internal Construction costs	$0	$259,421	$259,421	$0
New Inlet Works Step Screen (not yet ordered)	$0	$90,000	$90,000	$0
Total construction contracts	$14,710,000	$8,720,042	$9,507,362	$787,320
Other				
Internal Project Management Costs	$300,000	$764,109	$764,109	$0
Land/Authority/Approvals	$0	$117,862	$117,862	$0
Design	$0	$1,069,639#	$1,203,229#	$133,590
Commissioning	$0	$64,603	$64,603	$0
Contingency	$0	$71,201	$71,201	$0
Total other	$300,000	$2,221,004	$2,221,004	$0
Subtotal	$15,010,000	$10,941,046	$11,728,366	$787,320
Approved Budget (incl. escalation)	$15,451,000			
Deduct diversion to QUU	-$2,830,000			
Total approved budget	$12,621,000			
Surplus/(Deficit)	$892,634			

Note:

^ *Calculated by subtracting Contract from 'Actual to date'. It is noted that this does not correlate with individual variation tables presented in Unitywater's information package.*

Design costs include Consultants costs to prepare Planning Studies and Preliminary justification reports (some of these costs were incurred by Moreton Bay Water prior to formation of Unitywater). Design costs represent a total $551,800.

The information reviewed does not show the make-up of contingency allowance in each of the work packages. It is, however, assumed that given the packages were procured using a hybrid EPCM model, market forces would have ensured efficiency.

Information provided by Unitywater[178] indicates that the total project cost to date (September 2012), including accruals, is $10.945 million with a forecast final cost of $11.73 million.

Unitywater has identified the primary cost differences between the business case plan and the final project plan are:

- QUU diversion works removed from this project.
- Reuse of the Murrumba Downs WWTP odour control unit at Brendale STP for odour control at the biosolids building which provided an approximate saving of $4 million. This was an innovative solution that was able to utilise an existing temporary odour control facility that was no longer required at Murrumba Downs WWTP.
- Addition of Sludge Storage Hopper and Conveyors to project scope. This was identified (after the approval of the Business Case) at one of the early design meetings with the key stakeholders. Safety concerns were raised about the number of truck movements required on site to process the sludge at Brendale STP using the existing facility. It was also difficult to manage the odours with the existing sludge handling facility as the sludge storage truck was not sealed. After a detailed investigation, it was identified that an additional 80 tonne storage hopper and a new outloading bay would resolve these issues. The new sludge storage hopper is fully sealed which made it much easier to contain and extract the odours. This would also provide operational savings by reducing the need to remove the sludge trailers from sites as frequently.

Given the project is nearing completion, it is expected (based on the information reviewed) that Unitywater should deliver the project under budget.

Design costs and project management costs have amounted to 13 percent and 8 percent respectively of construction costs. Whilst some design costs were also included in the detailed packages of works, and the project incurred legacy costs associated with Moreton Bay Water, design and project management costs seem reasonable for a project of this nature. Additional contingency from Unitywater represents some 0.7 percent of construction costs.

A.5.7 Implications for Operating Expenditure

No information on operating expenditure was included in any documentation reviewed.

It is noted, however, that whilst the proposed works are expected to improve operational efficiency at the plant, the increased loading is likely to attract some additional operation and maintenance costs. Whilst provision of the infrastructure required to transfer sewage flows to QUU's Luggage Point STP was ultimately removed

[178] Unitywater, *2012/13 Price Monitoring Review Response to Request for Information Halcrow01 Brendale STP Augmentation Project*, 9 October 2012.

from the scope of this project, it is noted that this component is likely to attract significant pumping costs.

A.5.8 Assessment of Prudence and Efficiency

Unitywater has demonstrated prudence in delivering this project. From the early planning stages, options have been identified that allow expenditure to be appropriately delayed, whilst still meeting obligations and drivers related to growth and compliance. As would be expected, some renewals were also required for this project and these have been carefully selected to ensure that project costs were minimised. Unitywater has also shown prudence in reusing the Murrumba Downs WWTP odour control unit at Brendale STP.

In regards to efficiency, Unitywater has adopted a flexible delivery approach in order to keep costs down. Whilst it is still unclear as to the exact amount of contingency built into the project (as this is masked by lump sum amounts from contractors), the relatively small allowance (0.7 percent of construction costs) added by Unitywater appears reasonable. Halcrow considers this project to have been delivered efficiently.

A.5.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the Brendale WWTP Upgrade (Stage 3) project amounting to $12.655 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $1.108 million ($nominal) forecast in 2012/13; the total project cost is reported as $13.337 million ($nominal). The proposed expenditure profile is shown in **Table A.15**.

Table A.15: Actual and Forecast Capital Expenditure ($'000 nominal) - Brendale WWTP Upgrade (Stage 3)

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	896	10,651	1,108	0	0	12,655
Proposed adjustment	-	-	-927	-	-	-927
Halcrow Recommended Expenditure Profile	896	10,651	181	0	0	11,728

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

On the basis of the assessment outlined above, it is recommended that the forecast expenditure profile be adjusted to reflect the most recent project cost forecast of $11.728 million, as shown in **Table A.15**.

A.6 Upgrade Woodford Wastewater Treatment Plant (Project Ref No: 186)

A.6.1 Project Description

Woodford Sewage Treatment Plant (STP) is a conventional activated sludge plant that has been in operation for some 34 years. Woodford STP discharges directly to the Stanley River, which ultimately flows into Somerset Dam, a regional drinking water storage. The STP, which has a design capacity of approximately 2,000EP, is currently operating at or near its hydraulic and nutrient load capacity, with an average loading of 1,960EP currently recorded. Unitywater advised that there have been a number of flow limit breaches recorded, whereby the STP exceeds its environmental licence. Additionally, Woodford is a key growth area, with 70-90 additional lots developed on an annual basis. As the current rate of growth is forecast to continue for the foreseeable future, the frequency of licence failures is also likely to increase.

Prior to the formation of Unitywater, Caboolture Shire Council, in response to the then ongoing drought, decided to provide 'Class A' recycled water at Woodford STP. A planning study was undertaken and an STP upgrade costing in the order of $25 million was proposed. This option was subsequently reviewed by its successor organisation (Moreton Bay Water), but due to the high capital cost, ongoing operating cost and coincidental breaking of the drought, the proposed solution was rejected. The scheme was subsequently reviewed by Unitywater following its formation, and a lower cost, phased solution was proposed.

On the basis of the latest assessment by Unitywater, taking into account current loading levels and the forecast levels of growth within the catchment, Unitywater proposes to incrementally upgrade the existing STP over a number of phased stages. Initially utilising the existing STP infrastructure and footprint, it is proposed to construct a new inlet works and clarifier in order to increase the STP capacity to 2,600EP. This will provide sufficient capacity until 2020, following which an irrigation farm will be established with 700EP package plants added in 2021 and 2031, on a needs basis.

A.6.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- *2012/13 Price Monitoring Review; Request for Information Haalcrow01; Unitywater Response*, 2 October 2012;
- *Woodford STP – Planning Study – Achieving maximum capacity with the existing plant*, July 2010;
- *Woodford STP Upgrade – Business Case*, October 2010;
- *Woodford STP Upgrade - Needs Analysis Report*;
- *Woodford STP Upgrade – Significant Procurement Plan*, 31 February 2011;
- *Woodford STP Upgrade – Project Schedule*, August 2012; and
- *Woodford STP Upgrade – Cost Report*, August 2012.

A.6.3 Key Drivers and Obligations

The primary drivers for investment are compliance, growth and maintenance.

As highlighted above, the STP is at risk of exceeding its environmental discharge licence conditions. In the last three years (up to February 2012), Woodford STP has recorded 17 wet weather flow limit breaches and 14 dry weather flow limit breaches of licence conditions, and as the rate of growth within the catchment continues to increase, the frequency and impact of the licence breaches will increase. In addition to the flow limit breaches, the STP has been subject to a number of odour complaints which also represent non-conformances with the environmental licence. On this basis, discharge licence compliance is the key driver for investment.

Woodford STP has been operating near its design hydraulic and nutrient loading capacity of 2,000EP. An average loading rate of 1,960EP is currently recorded, with growth within the catchment forecast to ultimately reach 4,500EP.

Additionally, the Woodford STP is circa 34 years old, with the associated inlet works, switchboards, instrumentation and sludge dewatering equipment nearing the end of its design life. There are also a number of 'health and safety' issues on site that need resolving and on this basis the STP is in need of base maintenance expenditure, in order to maintain performance.

A.6.4 Solution Development

The capacity and performance of Woodford STP has been an ongoing issue for Unitywater and its predecessor organisations, with a variety of different upgrade options considered over the years.

Following the formation of Unitywater in May 2010, Unitywater engineers undertook a review of the proposed options, assessing each option against a multi-criteria analysis. The final three options considered are summarised below:

- Option A – This option includes the upgrading of the existing Woodford STP to 2,600EP and constructing packaged treatment plants (membrane or SBR type) with 700EP capacity in 2021 and 2031 and an irrigation farm in 2020.
- Option B – This option includes the diversion of the total Woodford STP flow to South Caboolture STP which is nearly 30 kilometres away. The existing Woodford STP would be decommissioned and demolished.
- Option C – This option includes upgrading the Woodford STP to provide a capacity of 3,000EP and Class A quality recycled water supply for approximately 400 connections in Woodford and D'Aguilar. This option allows the addition of a packaged STP and irrigation farm in 2031. This option includes the construction of a membrane bioreactor producing Class A effluent.

The option analysis completed by Unitywater found that Option A had the lowest capital cost, and utilised the existing site footprint without the need for further planning applications. It also ensured that future upgrades can be modular and located on the irrigation farm. In general it concluded that Option A was the "*least cost, whole of life, solution for the augmentation of Woodford STP*".

On the basis of the above assessment, Unitywater has opted to deliver Option A with an initial capacity of 3,600EP (staged to ultimately provide treatment for 4,500EP), with the following broad scope of works proposed:

- Construction of a new Inlet Works;
- Construction of an additional Clarifier, with RAS Pumping Station;
- Replacement of existing effluent storage tank;
- Upgrade of the Balancing and Anoxic Tanks;
- Upgrade of the Aeration Tanks;
- Provision of Odour Management Facility;
- Provision of chemical storage and dosing facilities; and
- Full electrical upgrade.

Within the development of the business case, Unitywater has also developed a detailed risk register and sought to identify and mitigate any risks to project delivery.

A.6.5 Project Delivery

In order to introduce economies of scale and deliver the planned upgrade as efficiently as possible, Unitywater opted to procure the upgrade of Woodford STP concurrently with another similar STP upgrade (Cooroy STP), under the same contract. They also opted for an Early Contractor Involvement (ECI) procurement process in order to benefit from innovation available from the market.

Following a detailed procurement process, whereby seventeen respondents to the initial 'Expression of Interest' (which was based on the original design) were reduced to a shortlist of six preferred tenderers, three contractors were ultimately selected to take part in the ECI process. Halcrow found that the ECI process, which took place prior to the formal procurement process, generated circa $0.22 million in estimated savings, as a result of the following innovations:

- Relocation of the new clarifier saved space on site and reduced the length of pipe runs;
- Replacement of the existing earth effluent storage tank with a smaller tank, removed health and safety issues and reduced operating expenditure;
- Replacement of the sludge skip bin for belt press solids with a bottom feed screw conveyor eliminated the need for double handling;
- Development of a construction staging plan minimised the need for process shutdowns.

On completion of the ECI process, the tender documents were modified to include the various innovations, and the three ECI participants were then required to submit separate lump sum tender prices for each site, and a combined, discounted price for both sites. A lump sum price of $8 million was accepted for upgrade of the Woodford STP, which included a $0.55 million discount for securing the contract for both sites. The successful tenderer's price was significantly lower than the other two tenderers.

At the time of review, Unitywater advised that the scheme was approximately 75 percent complete, with progress against each key aspect of the project as summarised below:

- Civil & Structural Work – 75% complete;
- Mechanical Installation – 90% complete;
- Electrical Installation – 10% complete;
- Process Pipework – 75% complete;
- Control & Instrumentation – 95% complete with commissioning due to commence; and
- Security Fencing / Road works / Landscaping – 30% complete.

Halcrow was advised that commissioning was scheduled to commence in November 2012, with practical completion forecast for February 2013, which is four months later than originally forecast.

A.6.6 Cost Estimate

As highlighted above, a lump sum construction cost of $8 million was agreed with the successful contractor to deliver the upgrade of Woodford STP. The contract value was subsequently adjusted to allow for the completion of early works and provision for wet weather. As a result of this, the construction cost escalated to $8.334 million.

In addition to the lump sum contract price, the budget was also adjusted to allow for design cost (~17 percent), other Unitywater management costs (~21 percent) and a 6 percent contingency allowance. As the project has progressed, budgeted costs have been subject to further variation, as summarised in **Table A.16**.

Table A.16: Project Budget and Forecast Final Cost - Upgrade Woodford Wastewater Treatment Plant

Project Activity	Whole of Life Budget Cost	% of Total Budget Cost	Forecast Final Cost	% of Total Forecast Final Cost
A. Project Management	$1,401,274	9.41%	$1,101,395	8.16%
B. Land/Authority Approvals	$1,426,108	9.58%	$111,398	0.82%
C. Design	$2,508,480	16.84%	$2,370,014	17.55%
D. Construction	$8,334,075	55.96%	$9,421,468	69.76%
E. Commissioning	$298,736	2.01%	$231,151	1.71%
F. Contingencies	$924,545	6.21%	$270,000	2.00%
Total Project Cost	$14,893,218	100.00%	$13,505,426	100.00%

Halcrow reviewed the forecast final costs and noted significant variation, particularly around the construction and land purchase activities. Halcrow notes that the agreement of a mass load licence with the DERM, has negated the need to purchase land for the

irrigation farm. The project has also been subject to a number of variations that have further impacted on the final construction cost, due primarily to the need to re-scope and re-design the busbar, sludge conveyor hopper and MCC-4 integration.

Design costs of 17.5 percent are higher than Halcrow would expect for a project of this nature, however, it is recognised that the final solution is significantly different to that initially proposed, and as a result has been subject to significant re-design. Conversely, the management costs are lower than expected, reflecting the consolidation of project management activities in the delivery of the two schemes under the same contract.

At the time of review, expenditure in the order of $9.4 million had been incurred to date, which is consistent with the reported physical progress of the scheme.

A.6.7 Implications for Operating Expenditure

Whilst the impact on operating expenditure is not directly quantified within Unitywater's project proposals, the provision of a long term, sustainable, wastewater disposal solution, delivers a number of benefits for the Woodford community. The scheme is primarily driven by the need to provide additional treatment capacity to ensure compliance against its environmental discharge licence conditions and to cater for predicted levels of growth within the catchment. Whilst upgrade of the works to treat additional demand on the sewerage system will incur additional power and chemical costs, there will be a corresponding reduction in the number of process failures and flow limit breaches that would require remedial operator action.

A.6.8 Assessment of Prudence and Efficiency

On the basis that the Woodford STP is circa 34 years old, is operating beyond its design hydraulic and nutrient loading capacity and regularly exceeds its environmental discharge licence conditions, upgrade of the STP is both necessary and prudent.

Halcrow considers that Unitywater has adopted a sensible approach to the project, scaling down the initial proposals to provide Class A water, and designing a solution that enables phased delivery of additional treatment process elements, as and when growth within the catchment demands it. Unitywater has undertaken a Net Present Value (NPV) analysis which accounted for whole of life costs as well as the capital cost, and the final solution had the lowest initial capital cost and relatively low ongoing operating expenditure. It is worth noting, however, that the NPV analysis was based on a discount rate over 20 years of 9.88 percent, which is significantly higher than Halcrow has seen applied by other companies on similar financial assessments (typically 6 percent).

Although subject to additional procurement costs, Halcrow considers the ECI approach to procurement to have been both beneficial and cost effective. By involving a select number of contractors in the project definition phase, a number of innovations that have reduced the contract price by an amount in the order of $0.22 million have been identified. The consolidation of the Woodford and Cooroy STP upgrade projects into a single contract has also delivered a reduction in the lump sum tendered price and should also reduce Unitywater management and procurement costs.

The contracted cost of constructing the scheme has, however, been subject to significant cost variance, with the construction price moving from $8.33 million to $9.42 million. This represents a 13 percent increase in construction costs, which was in excess of the allowed contingency allowance. However, savings to other aspects of the project delivery process have resulted in a forecast outturn cost of $13.5 million. This represents a 9 percent reduction in the forecast cost assumed in the financial profile shown in Unitywater Interim Price Monitoring Submission (excluding capital overhead allowances), thereby demonstrating efficiency of the project delivery process.

A.6.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the Upgrade Woodford Wastewater Treatment Plant project amounting to $14.626 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $5.721 million ($nominal) forecast in 2012/13; the total project cost is reported as $16.612 million ($nominal). The proposed expenditure profile is shown in **Table A.17**.

Table A.17: Actual and Forecast Capital Expenditure ($'000 nominal) - Upgrade Woodford Wastewater Treatment Plant

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	592	8,314	5,721	0	0	14,626
Proposed adjustment	-	-2,080	-606	-	-	-2,685
Halcrow Recommended Expenditure Profile	592	6,234	5,115	0	0	11,941

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

On the basis of the assessment outlined above, it is recommended that the forecast expenditure be re-profiled to reflect the latest forecast reported by the Project Manager, noting that the total project cost is now forecast to be $13.505 million (which is inclusive of expenditure incurred prior to 2010/11). The proposed adjustment is as shown in **Table A.17**.

A.7 Consolidated Asset Management System (CAMS) (Project Ref No: 459)

A.7.1 Project Description

At the time of formation, Unitywater inherited multiple Asset Management Systems (AMS) from the former Council water service providers (Sunshine Coast Water and Moreton Bay Water) that previously provided functionality to support the individual needs of each provider. Unitywater observed the need for a single comprehensive asset management system that supports organisation-wide asset management. Services (ie. the software systems) were initially provided under Service Level Agreements (SLAs) with each respective Council. Negotiated SLA's included a defined end date (30 June 2012) after which all ties to constituent Council systems were to be removed.[179]

At the core of the AMS in the northern region was 'Maximo', whilst the southern region utilised 'Hansen'.[180] An initial assessment of Hansen and Maximo determined that they both address almost all of Unitywater's AMS requirements, so the potential additional benefits of other options would not justify the considerably higher implementation costs. Hence the assessment was limited to Hansen and Maximo.

The proposed CAMS asset management project involved the review, selection and implementation of a single AMS across Unitywater. The project intent captures the opportunity to improve Unitywater's asset management performance by adopting the best practices from both of its predecessors and other sources. Such improvements may be in the form of business processes, systems and/or data management.

The scope of this project includes implementation of the following functionality:

- Asset registers;
- Maintenance management;
- Mobile computing for approximately 350 field staff;
- Timesheets;
- Work order costing against assets;
- Asset performance and condition data collection;
- Asset-related KPI reporting; and
- Asset accounting.

The AMS is intended to be used to manage all asset classes including water and sewerage networks (including reservoirs and pumping stations); sewage treatment plants; land and buildings; fleet and plant; ICT assets; portable and attractive items. [181]

[179] Unitywater, *2012/13 Price Monitoring Review, Request for Information, Halcrow01, Unitywater Response, Geographic Information System Establishment Project*, 9 October 2012.

[180] Both 'Maximo' and 'Hansen' are enterprise asset management systems.

[181] Portable and Attractive Items is an asset class defined in the business case.

The AMS will interface with the following business systems employed by Unitywater:

- KernMobile mobile works management application;
- FinanceOne General Ledger, Purchasing, Inventory and Payables applications;
- Fixed Assets MS-Access database;
- CHRIS21 Payroll application;
- Corporate EDRMS application;
- Corporate GIS application;
- Corporate customer relationship management application;
- Corporate retail billing application;
- Corporate SCADA application; and
- Corporate workplace health and safety application.

It is understood all systems have been developed/are in development under separate projects apart from the *KernMobile mobile works management application*, which is part of this (CAMS) project.

A.7.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- Unitywater, *Asset Steering Committee, Asset Management System (AMS) Project*, 9 February 2011;
- Unitywater, *2012/13 Price Monitoring Review, Request for Information, Halcrow01, Unitywater Response, Geographic Information System Establishment Project*, 9 October 2012;
- Unitywater, *Consolidated Asset Management System Business Case (Version 2.1)*, 27 March 2012; and
- Unitywater, *Consolidated Asset Management System, Project Management Plan*, approved 7 July 2011.

A.7.3 Key Drivers and Obligations

Drivers were divided into external and internal drivers in the Business Case. External drivers were related to regulatory compliance, whilst internal drivers are related to achieving a single consistent set of systems and processes across Unitywater. Implementation of this project will reduce risk for Unitywater, primarily as use of Council legacy systems will no longer be necessary.

Unitywater identified quantifiable benefits of a single AMS, as follows:

- ongoing annual maintenance saving;
- reduced Council SLA costs;
- reduced cost of systems administration; and
- reduced interface development and operating costs.

If this project was not undertaken, there would be cost inefficiencies related to operating two separate asset management software systems and there is a risk associated with the constituent Councils not providing legacy system support.

Although drivers aren't clearly articulated, they do align with and strategic objectives of Project Paramount[182] including:

- Customer Satisfaction;
- Integrated whole of region business;
- Proud, productive people; and
- Sustainable value and growth.

Halcrow therefore considers the drivers for the project to be suitable.

A.7.4 Solution Development

Unitywater engaged a consultant to undertake an assessment of the functionality and capability of the business systems (including the asset management systems) operated by its constituent Councils. The recommendations arsing from the consultant's review[183] were used as the basis for preparation of a Business Case in support of the CAMS project. Halcrow notes that Unitywater's Executive Management Team has acknowledged a recommendation from the consultant to develop an Asset Management Framework and identified this as a future project, noting that implementation of the AMS would assist in shaping the business' asset management practices.

The benefits of implementing an AMS were quantified in the Business Case. Benefits were categorised as 'hard' and 'soft', where 'soft' benefits are improvements that are unlikely to be realised directly, but can be realised over time in conjunction with other productivity benefits. 'Hard' benefits are fully realisable via the project.

The total projected benefits realised easily over the 5 year period 2011/12 to 2015/16 amounted to $3.886 million ($real 2011/12). Other benefits identified as 'soft' are also listed (as they would realised in combination with other Project Paramount initiatives such as implementation of the GIS Establishment Project (GISEP) and the May 2011 upgrade of KernMobile mobile works management) amounting to $15.043 million ($real 2011/12).

Given the clear need for a single AMS and the benefits of adopting one of the existing systems (both of which were functionally suitable), the Business Case was limited to an assessment of Hansen and Maximo. Each AMS was scored in number areas. The 'Do Nothing' option (**Option A1**) was considered but was deemed not viable because it depended upon the Councils continuing to provide SLA services and would result in Unitywater continuing to use disparate AMS and associated processes. Halcrow considers disregard of the 'do nothing' option to be appropriate.

[182] 'Project Paramount' was initiated by Unitywater as part of the transformation process. The purpose of Project Paramount was to integrate the existing disparate technologies and systems from the two constituent regional councils, in order to establish Unitywater's corporate systems.

[183] Recommendations presented in a February 2011 report, which was not provided for review.

Option A2 was full adoption of the Maximo AMS. This system is used by many water utilities world-wide and is implemented by IBM and local partner Clarita.

Option A3 was full adoption of the Hansen AMS. This system is also used by many water utilities world-wide and is owned by Infor, which has offices in Australia.

Maximo and Hansen scored similarly in non-cost and cost related criteria.

Options in respect of a Mobile Field Office (MFO) system were also assessed. The southern (Moreton Bay) area already had MFO in operation. Concerns were raised with Option B1 ('do nothing') as this may lead to a split between northern and southern operations. Option B2, which involved rolling out an MFO to the northern area to promote common system practices and processes for ISD Field Services staff, was eventually selected.

Calculation of Net Present Value using a discount rate of 9.35 percent[184] indicated that Option A2 (Maximo) was slightly cheaper than Option A3 (Hansen). Option A2 (Clarita/Maximo) was thus the recommended option because it is the lowest cost option and rated slightly better for all other evaluation criteria.

It is also noted that risks were assessed for the project, with three key risks being identified, as follows:

- The risk of default by the competing suppliers;
- Many of the project benefits are realised as productivity improvements that are absorbed into day-to-day activities; and
- Unitywater may be disbanded before the project is completed.

Since the original Business Case was approved in May 2011(version 1.1), business growth has seen some development of processes which in turn has altered the course of AMS development (refer to variations listed in **Table A.19**). According to Unitywater, the AMS system is complex and is required to adapt to the changed operating environment that it is experiencing. This has led to an increase in the footprint of the AMS within the organisation and an increase in the amount of time required for implementation. For example, the project has required the development of an 'Enterprise Bus'[185] to facilitate the development and maintenance of interfaces between systems. Unitywater has advised that the AMS is likely to be one of the first of its systems to use the "Enterprise Bus" technology. Whilst this is likely to incur additional implementation costs, Unitywater expects that it will provide longer-term operational savings.

The costing in the Business Case is based upon point-to-point interfacing and does not include development of the "Enterprise Bus".

[184] 9.35 percent is the WACC discount rate suggested by QCA. It is noted, that Unitywater has used a range of discount factors; it has not explained the reason for this variance.

[185] An 'Enterprise Bus' assists with communication and interaction between mutually interacting software.

A.7.5 Project Delivery

The CAMS Project is part of Program Paramount. The project was authorised signed off by all major stakeholders endorsing Unitywater's decision to migrate previous Council based asset systems into a single Unitywater Asset Management System. Evidence has been provided as part of the review process that Unity is adhering to a gateway review process in obtaining funding, scope approval and internal stakeholder buy-in.

The business case provides a high level implementation plan and high level deliverable plan. For this project, Unitywater applied the Prince2 methodology for project management (initiate; planning; delivery; close).

The project management plan provides and indicative project schedule that divided the project into the following four main components:

- Vendor/software selection (completed – selected Clarita Solutions/Maximo).
- Detailed design (about 5-6 months starting early June 2011).
- Build (about 6 months starting September 2011).
- Implementation (about 3 months starting March 2012).

A Probity Auditor was engaged to ensure transparency in the selection process of outside services. An external consultant was also engaged to review asset data and determine the scope of work and budget required for data migration to the new AMS (according to Unitywater this was originally planned to be undertaken in-house).

In terms of project rollout, Unitywater is bringing online various modules of the AMS as they are completed. This seems like a reasonable approach and assists in cushioning the impact of delays associated with additional funding for the project being required.

A.7.6 Cost Estimate

The earliest indication of total project budget was in a recommendation to the Asset Steering Committee that sought approval for revision of the project budget from $1.32 million to be $1.37 million.

The initial forecast in version 2.0 of the CAMS project Business Case is a projected cost of $4.86 million.[186] The estimate considered project and operational costs over 5/10 years. Design costs were estimated to be $604,000 (some 12 percent) of the projected $4,861,000. Unitywater advised that this amount includes all "capitalisable" costs but excludes all operating costs.

At the completion of detailed design, cost forecasts were updated (version 2.1 Business Case) to a total $5.63 million, with design costs totalling some $1.5 million (27 percent) as summarised in **Table A.18**. This is a large increase in terms of design costs from $0.6 million to $1.5 million or a 150 percent increase.

[186] The business case was updated following detailed design. It is noted that the business case document history indicates there are earlier versions of CAMS business case. Halcrow have not reviewed earlier versions. Earlier business cases may contain different early estimates.

The increase in total project cost from $4,861,000 to $5,630,000 was raised as Change Request CAMS005, which was approved by EMT on 15 March 2012. Unitywater's information pack presents information that there is a saving of $195,000 in evaluation costs.

Whilst **Table A.18** shows that contingency is only some $50,000 of the total $5,630,000 (less than 1 percent) in version 2.1 of the Business Case, it is difficult to regard this amount as a correct indication of the required contingency given that the scope of the project was changed and the Business Case documentation updated to reflect the change (It is noted that the contingency allowance included in version 2.0 of the Business Case equated to $634,000 (15 percent of the project cost)). It is further noted, however, that the contingency allowance was subsequently increased to an amount of $340,000, which remains current.

Table A.18: Comparison of CAMS Cost during Different Project Phases ($'000 nominal)

Type	Total Business Case v2.0	Initiation/Design Business Case v2.1	Build/Implement Business Case v2.1	Total Business Case v2.1#	Total (with variations)^
External – Clarita/Maximo	1,734	609	1,235	1,844	5,174
External - Mobile computing	116	95	366	461	
External - Non-selected vendor	200	6	230	236	
Labour	1,902	629	2,157	2,786	2,778
Evaluation costs	195	195	0	195	0*
Other costs	80	7	51	58	437
Contingency	634	0	50	50	340
Total	4,861	1,541	4,089	5,630	8,730

Note:

\# *Figures presented in the most recently approved business case differ slightly from the information pack provided to Halcrow.*

^ *Based on information presented in information pack provided to Halcrow.*

* *Assumed.*

As also noted in **Table A.18**, the total project cost is now estimated to be $8.73 million following the inclusion of a number of variations.

Unitywater advised that it has implemented a change management process for variations, which assesses changes to cost, time or scope; these changes were flagged by the business, project or vendors. Each change undergoes an impact assessment and, if there is an impact, it is presented to the Governance Committee and Project Advisory Team (PAT).

Table A.19 summarises all of the variations raised as part of the project; each of these required approval by the appropriate governance groups within Unitywater. The two largest variations CAMS005 (which was incorporated into the Business Case (version 2.1) estimate) and CAMS012 are discussed in detail below.

Table A.19: Summary of CAMS Project Cost Variations

Change #	Type of Change	Change Description	$ Impact
CAMS005	Cost	Increase project budget by $770,000	$770,000
CAMS012	Cost	Increase project budget and schedule to complete assigned tasks for the project	$3,100,000
MCR0007	Scope	Integration with Unify	$29,095
MCR008A	Cost	Additional support resources	$22,000
MCR0010	Scope	Configure single sign on	$2,600
MCR0011	Scope	Refinement of Unitywater requirements	$6,600
MCR0013	Cost	Alignment of Maximo and KernMobile to new Asset data export interface requirements	$13,200
MCR0015	Cost	SQL Server Authentication	$2,200
Variations Approved subsequent to Business Case (version 2.1)			$3,175,695
Total Approved Variations			$3,945,695

It is understood that the $770,000 variation (CAMS005) was identified following design completion. Whilst the identification of a change of scope upon design completion is considered rational, there is little detail about the scope (or its justification) of the additional work involved. Furthermore, no detail has been provided as to the separation from variation CAMS012 which, on the basis of numbering, appears to have followed.

Unitywater has provided information in relation to variation CAMS012 which represents an additional 55 percent of cost on top of the $5.63 million estimate presented in the information pack provided to Halcrow; it was initiated in August 2012 as a result of a complete project review. The review highlighted the following:

- *Business requirements changed over time. Over the last two years as the business has evolved and become a single Utility, consequently what the business requires from an Asset System has changed and in order to meet those changes the Consolidated Asset Management Project has had to revisit and validate a number of functional requirements with the business.*
- *Business requirements had not been adequately defined to the level required to develop some functionality. This is a consequence of business processes and the business operating model not being defined as the project started. As these key business processes have matured over the course of the last year, it has prompted the project to revisit a number of initial assumptions about these processes.*
- *System integration effort and costs were higher than expected for two key reasons:*
  1. *The Paramount program included a number of core systems that have been developed within Unitywater in parallel to the Asset Management System. Initial estimates for system*

integration could not appreciate the complexity of the other systems that would be developed and the integration effort required to support a whole of business system such as an Asset Management System.

2. *Strategy and Architecture have mandated the use of the best of breed Enterprise Services Bus (ESB) to support all system integrations in order to improve flexibility and robustness of system integrations. Whilst there is a higher initial cost to implement ESB integration, the longer term operational costs are reduced as systems become abstracted from one another, insulating them from the systems change down or upstream of the system.*

Unitywater management proceeded with approval of the $3.1 million variation on the basis that the CAMS project delivers its intended benefits. Management:

- *Approved a revised scope which accounts for changes in system architecture and updated business processes;*
- *Developed detailed requirements needed to build remaining required functionality;*
- *Renegotiated vendor contracts to clearly establish remaining deliverables, schedules and vendor costs;*
- *Proposed the extension of the project schedule by two months from February 2013 to April 2013 with all major deliverables required by the end of February and project finalisation activities occurring through to April 2013; and*
- *Utilisation of the Enterprise Data Warehouse to minimise potentially significant costs relating to report development.*

Halcrow agrees that, given the stage of the project at time, the identified variation may be necessary. However, without a thorough understanding of the details of the additional scope involved, it is difficult to agree that efficiency was demonstrated for such a large variation.

Unitywater advised that expenditure approvals have followed the standard project lifecycle with Project Gateways being applied to each phase as shown in **Table A.20** (based on revised project total). As can be seen, most costs are attributed to the delivery phase, which represents some 88 percent of the total.

Table A.20: CAMS Project Cost based on Delivery Phase[187]

Gateway	Forecast Expenditure
Initiate	$229,000
Planning	$455,000
Delivery	$7,712,000
Close	$314,000
Total	$8,700,000^

Note:

^ *Figure has been rounded by Unitywater. Actual total is $8,710,000.*

[187] Information sourced from CAMS Information pack supplied to Halcrow.

A.7.7 Implications for Operating Expenditure

The operating costs associated with this proposal are unknown. It is, however, noted that the purpose of this project is to streamline operations and reduce maintenance, systems administration and other operating costs. This project therefore should have a positive impact on reducing operating expenditure.

Given the Board endorsement for large variations, it is recommended that the operational cost savings derived as a result of this project be quantified on an annual (minimum) basis.

A.7.8 Assessment of Prudence and Efficiency

Unitywater has demonstrated prudence in selecting this project for priority in its capital program; a need for this project is evident. Unitywater has quantified project benefits, identified risks, considered options and conducted procurement in a transparent manner. Halcrow therefore considers undertaking of this project to be prudent.

In terms of efficiency, based on the cross-business interaction, scale and nature of this project, there may have been some difficulty in initiating the project and having complete buy-in from all internal stakeholders. It is recognised that implementation and acceptance of new systems can be a difficult process to manage, however, Unitywater appears to have handled this process reasonably well and thoroughly documented its approach in doing so. On this basis project delivery is considered to be generally efficient.

However, in the absence of a detailed understanding of the scope of each cost item associated with the project, and specifically the changes that have led to the significant variations in cost, it has not been possible to assess efficiency at a detailed level.

There have been some time delays, however, these have been well documented and communicated. Also delivery of system 'modules' is considered to be a reasonable approach as this helps cushion the impact of whole of system delays.

A.7.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the Asset Management System project amounting to $5.317 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $1.362 million ($nominal) forecast in 2012/13; the total project cost is reported as $5.332 million ($nominal). The proposed expenditure profile is shown in **Table A.21**.

Table A.21: Actual and Forecast Capital Expenditure ($'000 nominal) - Asset Management System

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	208	3,748	1,362	0	0	5,317
Proposed adjustment	-	-	+298	-	-	+298
Halcrow Recommended Expenditure Profile	208	3,748	1,660	0	0	5,616

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

On the basis of the assessment outlined above, it is recommended that the forecast expenditure in 2012/13 and future years be adjusted as shown in **Table A.21**. The adjustment reflects the additional project cost identified in the Business Case (version 2.1) estimate of $5.63 million, but not the variations amounting to $3.10 million (which brings the total project cost to $8.73 million).

A.8 GIS Establishment (Project Ref No: 460)

A.8.1 Project Description

The Unitywater GIS Establishment Project (GISEP) is designed to deliver an integrated (ie. enterprise-wide) spatial environment and improved spatial data quality. This project is intended to empower Unitywater staff by providing an easy to use spatial environment with associated reliable data to aid quality and timely, effective decision making.[188] The GISEP will form part of the broader asset management system and interface with the CAMS project.

Prior to the GISEP, Unitywater inherited two legacy maintenance management systems which were not well developed and were lacking basic structures such an asset catalogue (similar to the asset management system). It was recognised that having two different maintenance management systems and processes would result in a fragmented, inconsistent approach to the management of assets, which ultimately leads to inconsistent customer service standards. At the same time it was identified that there would be significant inefficiencies and costs associated with maintaining both of the legacy systems. Furthermore, these systems were tied to previous Council systems and negotiated Service Level Agreements (SLAs) that had a defined end date (30 June 2012) after which all ties to constituent Council systems were to be removed

The overall objective of the project is to:

- Build a Unitywater GIS capability to replace legacy systems/applications and address duplication and gaps that Unitywater has inherited from its constituent Councils;
- Improve data quality and standardise business management processes;
- Support the Consolidated Asset Management System (CAMS) project requirement to have a defined set of GIS functionality in place by mid 2012.

A.8.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- Unitywater, *2012/13 Price Monitoring Review, Request for Information, Halcrow02, Unitywater Response, Geographic Information System Establishment Project*, 15 October 2012;
- Unitywater, *GIS Establishment Project Business Case (Revised draft)*, August 2011; and
- Unitywater, *GIS Establishment Project, Project Management Plan*, approved 28 September 2011.

A.8.3 Key Drivers and Obligations

Halcrow sees a clear need for implementation of the proposed system, however, the major drivers for this project are not clearly articulated by Unitywater in documentation reviewed. Notwithstanding, Halcrow has identified the major drivers as follows:

[188] Unitywater, *2012/13 Price Monitoring Review, Request for Information, Halcrow02, Unitywater Response, Geographic Information System Establishment Project*, 15 October 2012.

- Efficiency – different systems and processes would result in a fragmented, inconsistent approach to the management of assets.
- Risk management – if one or both of the Councils decide to stop providing GIS services under their SLA, Unitywater would be left without GIS coverage for part or all of its area of operations.
- Compliance with Customer Charter – if Unitywater did not introduce a new streamlined system, they would be unable to perform operations in a manner that meets customer expectations.
- Integration/Consolidation of Systems – provision of a single GIS system and mapping capability incorporating data from the constituent Council systems, thereby facilitating the consolidation of processes in a centralised system.
- Continuous Improvement – implementation of a system that supports improvement of data quality and business processes.

Unitywater has indicated that the lack of a quality GIS software system would hinder the development and implementation of a best practice asset management system. The GIS Establishment Project was considered one of the key systems required in order to create a single efficient water and sewerage business. Consequently, it was accorded a high priority at the initial start-up phase of Unitywater.

Halcrow agrees there is a clear need for this project and that this project would also lead to intangible benefits further described in the following section.

The Business Case documentation identifies how this project aligns with all of Unitywater's strategic goals, which includes the alignment and integration of its business systems. Halcrow supports the assessment that implementation of this project, in conjunction with other business systems (eg. the Consolidated Asset Management System (CAMS)), will improve the efficiency of Unitywater's business operations.

A.8.4 Solution Development

The Business Case for this project, developed during July/August 2011, identified the fact that Unitywater's spatial environment was degrading. This had significantly reduced the confidence and morale of the field and office staff that depend on the key systems and data due to the combination of the following:

- inherited poor data quality issues;
- the inability to align Council systems to Unitywater's needs;
- the fragmented data flow processes currently in place; and
- a lack of resources transferred from Councils.

In justifying the need to implement its own geospatial technology, Unitywater recognised the need to address the data, processes and people aspects of its geospatial information needs simultaneously. The Business Case clearly articulated the project need; the implication of not proceeding and the expected benefits.

The Business Case established three options, as identified in **Table A.22**. Both tangible (quantifiable) and intangible benefits (non-quantifiable) were listed in the Business Case, assuming full implementation of the GISEP project with all geospatial components. Each of the options was evaluated on the basis of its tangible benefits.

Table A.22: GIS Establishment – Options Considered

Option	Description	Tangible Benefit ($'000)	Cost excluding contingency ($'000)
1	Do nothing	0	0
2	Implement GIS only (without associated geospatial components related to DBYD, drawing management, data improvement, business process redevelopment).	851	3,390
3	Full implementation including all geospatial components (DBYD, drawing management, data improvement, business process redevelopment).	4,400	9,573#

Note:

 # In the cost estimate, Unitywater applied a 20% contingency to their calculations for Option 3. This represented an additional cost of $1,801,000 for Option 3 not included in this amount.

The identified tangible benefits were:

- **Operational Efficiency:** Expected gains in current efficiency and productivity enabling personnel to undertake their work in less time and with less expense;
- **Cost Savings and Cost Avoidance:** Actual savings of money (ie. contract costs, direct expenses, etc) or the avoidance of future costs that might be necessary to support or comply with new program requirements (resulting from new regulations, legislation, legal decisions, etc).

The Business Case identifies Option 3 as the preferred option, however, it is not clear as to the basis upon which it was selected over Option 2 (noting that Option 2 is really just one stage of full system implementation).

The tangible benefits of undertaking the full scope of the project (Option 3) were listed by Unitywater (presented as **Table A.23**).

Table A.23: Detailed Assessment of Tangible Benefits (Option 3)

Benefit	Description	Measurement	Formulae	Benefit Realisation ($'000 p.a.)
Outage Management	By managing assets and equipment more effectively	By reducing the number of outages	2% reduction in the outages due to equipment failure ($10.5M)	210
	By having the ability to trace the network down to the customer level (i.e. the customer connections)	Faster identification of affected customers for planned and unplanned outages	1% efficiency gain over 40 Network Ops staff @$129.23k	52
	By having the shutoff sequence visible enterprise-wide, together with notification (i.e. 'Work in Progress') for internal usage	Faster identification of affected customers for planned and unplanned outages	0.25% reduction in the outages due to equipment failure ($10.5M)	26
	By having online incident mapping showing the location of bursts, blockages, etc	Faster restoration	50% of 1 staff @$129.23k yr	65
	By effectively producing reliable Management reports (e.g. of interruptions affecting sensitive customers, etc)	Faster notification of Management	0.25% efficiency gain on $10.5M expenditure	26
	By having access to historical outage information	Faster compilation of information	0.3% efficiency gain on $10.5M expenditure	32
Electrical/ Mechanical	By more effectively managing assets	Reduced time compiling data, reporting, analysing, etc	2% reduction in the outages due to equipment failure ($7.1M)	142
Civil Services	By more effectively managing assets	Reduced time compiling data, reporting, analysing, etc	2% reduction in the outages due to equipment failure ($14.9M)	298
Maintenance Management	By more effectively managing assets	Reduced cost of unplanned maintenance	3% efficiency gain on expenditure of $18.7M	561
	By more effectively managing assets	Reduced cost of planned maintenance	3% efficiency gain on expenditure of $8.8M	264
Infrastructure Planning & Delivery	By improving project planning	Reduction in time spent planning each project	2% of 46 staff @$154.8k yr	142
	By improving the management of pipes	Reduction in the number of pipe bursts	2.5% efficiency gain on $3.8M expenditure	95
	By improving the delivery of projects	Reduction in time spent delivering each project	2.5% efficiency gain on $1.3M	325
	By improving staff efficiency	Reduced project cost	1% of 634 staff @$109k yr	640

Benefit	Description	Measurement	Formulae	Benefit Realisation ($'000 p.a.)
	By interfacing GIS with the AMS	Faster availability of information	1% of 46 staff @$154.8k	71
	By improved management of asset performance (e.g. improved RCM, etc)	Reduced cost of asset management	0.25% efficiency gain on CAPEX expenditure of $159M	398
	By improved management of asset performance (e.g. improved RCM, etc)	Reduced cost of asset management	0.5% efficiency gain on OPEX expenditure of $102M	510
Contract Labour	By improved contractor management	Less time spent on jobs/projects	2.5% efficiency gain on $3.5M expenditure	88
Design	By automating design	Reduced cost of design	2.5% efficiency gain on $8.4M expenditure	210
Property Management	By more effectively managing property	Reduction in time spent managing property (e.g. reduction in time spent compiling information)	5% efficiency gain on $280k expenditure	14
Field Services	By improved field services	Reduction in time spent per job	0.75% of 321 staff @$96k yr	231
	Total (Fully realised) Annual Benefit Value			4400

The identified intangible benefits were:

- Decreased number of business applications;
- Increased productivity of workforce;
- Increased degree of confidence in spatial data;
- Increased customer satisfaction;
- Reduced risk of infrastructure damage;
- Decreased risk of regulatory compliance failure; and
- Increased potential to earn non-regulated revenue.

Halcrow supports Unitywater's approach in quantifying the tangible benefits that are expected to be realised. This would have enabled the Board to best understand how this project will drive efficiency in the business. Although it is somewhat more difficult place metrics around intangible benefits, Unitywater has shown prudence in identifying all aspects related to benefit realisation.

In terms of project payback, Unitywater has shown that Option 3 would be paid back in 5.9 years, with an internal rate of return of 26.4 percent. Furthermore, sensitivity analysis showed that even with a 15 percent decrease in the benefits, and a 15 percent increase in costs, the project still achieved an internal rate of return of 18.4percent.

A.8.5 Project Delivery

Delivery of different aspects of the project appears to have been well rationalised with options evaluated including:

- Selection of software – open source options and interface with existing systems was considered. ESRI ArcGIS was selected as the GIS platform. ESRI was the incumbent system provider.
- Data migration – Unitywater considered various options including outsourcing onshore and offshore, with the onshore model eventually being selected (noting this wasn't the cheapest option, but the lowest risk).

Meetings with Unitywater revealed that the project was to be delivered in two distinct phases, which was slightly different to the arrangements proposed in the Business Case; this is consistent with the delivery mechanism outlined in the additional information provided to Halcrow for the purposes of this review. The Project Management Plan describes the scope of Phases 1 and 2, as follows:

- **Phase 1:**
  1. Design and Implementation of a Unitywater GIS system;
  2. Migration of data from MBRC and SCRC Unitywater GIS instances;
  3. Migration of data from Hansen (legacy maintenance management system, Moreton Bay Region) into GIS;
  4. Implementation of updated business processes for capture of as-constructed spatial and attribute data;
  5. Development and release of a corporate Web Mapping tool based utilising the ESRI suite of software; and
  6. Decommissioning legacy GIS instances.
- **Phase 2:**
  1. Data quality improvement;
  2. Automation of network tracing and thematic mapping functions using the standard ESRI software tool kit;
  3. Integration of web mapping tool with other corporate business systems such as Unify and Maximo (CAMS)
  4. Development and implementation of a drawing management module using an industry standard – ADAC version 4.

According to Unitywater, Phase 1 was completed at the end of July 2012 and the project team has transitioned support of the Geospatial System to the ICT Operations department within Unitywater. Delivery of Phase 2 of the project will commence in February 2013, subject to approval of funding.

A.8.6 Cost Estimate

The approved budget for Phase 1 of the GIS Establishment, as identified in the Project Management Plan, was $3.5 million. The outturn cost for the completed Phase 1 was $2.9 million; this cost can be broken down into the following major categories:

- Acquisition of software;
- Data migration from systems managed on Council infrastructure;
- Design and build costs to support business processes and requirements; and
- Training and deployment costs.

Halcrow is unable to identify the costs attributable to the various aspects of Phase 1 scope and whether they were all completed as part of Phase 1. Nonetheless, the Project Management Plan does apportion budget costs to Phases 1 and 2 as shown in **Table A.24**. An estimate of the ongoing costs to maintain the ESRI Enterprise Licence Agreement (ELA) is also provided.

Table A.24: Project Cost Breakdown (by Phase)

Project Element	Phase 1 2011/12		Phase 2 2012/13		Ongoing 2013/14
	Cost ($)	Prop'n (%)	Cost ($)	Prop'n (%)	Cost ($)
Phase 1 Cost Breakdown					
Project Team	1,456,281	41%			
Esri ELA + Mapviewer	236,000	7%			
Capacity (Dev, Test, Prod) & tools	230,000	7%			
Data Cleansing & Acquisition	1,195,850	34%			
Training (vendor)	85,900	2%			
Project Accommodation	75,000	2%			
Legal support & Consulting services	20,000	1%			
Total	3,299,031	94%			
Phase 2 Cost Breakdown					
Project Team			850,000	29%	
ESRI ELA costs			270,100	9%	
Data cleansing and enrichment			1,100,000	37%	
Webservice development (.net) to support automation			247,000	8%	
Network tracing + asset creation development			160,000	5%	
DBYD software			200,000	7%	
Training			40,000	1%	
Project accommodation			50,000	2%	
Legal + 3rd party comms			40,000	1%	
Total			2,957,100	100%	
Total project costs					
Capital asset costs	1,894,849#		2,107,100		144,910
Project resource costs	1,629,281#		850,000		
Total	3,524,130#		2,957,100^		144,910

Note:

\# *assumed to include a 5% contingency on top of Phase 1 breakdown.*

^ *estimate does not include contingency.*

Given that the Phase 1 outturn cost was significantly (approximately 17 percent) less than budgeted, no further investigation was undertaken. All costs appear to be reasonable.

Phase 2 has been costed at $2,957,100, excluding contingency. Unitywater has applied a 20 percent contingency amount on top of the estimated cost of Phase 2 bringing the total to $3,548,520. According to the Project Management Plan, a 20 percent contingency was originally estimated as the technical design of the project wasn't well understood. Halcrow observes, however, that given the successful delivery of Phase 1, Unitywater should be in a position to better understand the technical requirements of the second phase. On this basis, Halcrow considers that the application of a lower contingency allowance in the order of 5-10 percent would be appropriate for Phase 2.

A.8.7 Implications for Operating Expenditure

This project will attract operating expenditure of $144,590 per annum for the ESRI software ELA. The operating expenditure savings related to not using other software have not been quantified.

Other operating expenditure savings amounting to some $4.4 million have been identified by Unitywater as tangible benefits of this project (refer **Table A.23**). Halcrow is satisfied there will be associated operating expenditure savings of the nature identified; it is expected that these will begin to be realised from 2014/15 onwards based on the planned timeframe for full system rollout.

A.8.8 Assessment of Prudence and Efficiency

Unitywater has demonstrated prudence in selecting this project for priority in years 2011/12 and 2012/13. The major drivers, whilst not immediately clear, are to support and drive efficiency related to core functions of the business. Whilst a project of this nature may have been the subject of more extensively staged implementation at other existing water utilities, Unitywater has captured the opportunity to implement a system that interfaces with much of the organisation, whist simultaneously allowing legacy systems to be decommissioned. The phasing and approach of this project is also logical and reasonable.

Now that Phase 1 is complete (the necessary tools for data management), Halcrow sees the need to immediately follow with implementation of Phase 2 which will see data improvements and process automation. It is following the implementation of Phase 2 that the real efficiency gains for the organisation will be realised.

Overall, implementation of this project appears to be efficient. Documentation is clear, options have been assessed and procurement strategies considered. Furthermore, the final outturn cost was significantly lower than expected for Phase 1.

With the implementation of this project, it is important that monitoring of benefits is undertaken. It is recommended that that a process be implemented (monitoring be undertaken) to confirm whether the business is achieving the desired efficiency gains, and that the findings be reported to the Board. In the event that the anticipated benefits are not being achieved, investigation should be undertaken to identify appropriate remedial actions so that the benefits for the organisation are maximised.

A.8.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the GIS Establishment project amounting to $6.959million ($nominal) over the five (5) year period 2010/11 to 2014/15, with $3.543 million ($nominal) forecast in 2012/13; the total project cost is reported as $6.959 million ($nominal). The proposed expenditure profile is shown in **Table A.25**.

Table A.25: Actual and Forecast Capital Expenditure ($'000 nominal) - GIS Establishment

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	0	3,416	3,543	0	0	6,959
Proposed adjustment	-	-506	-296	-	-	-802
Halcrow Recommended Expenditure Profile	0	2,910	3,247	0	0	6,157

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

On the basis of the assessment outlined above, it is recommended that the forecast expenditure profile be reduced as shown in **Table A.25**. The adjustment reflects the actual outturn cost achieved in respect of Phase 1 delivery (historical adjustment) and reduction of the Phase 2 contingency to 10 percent (2012/13).

A.9 System Enhancements & Improvements (Project Ref No: 1182)

A.9.1 Project Description

Following the merger of the water businesses operated by Sunshine Coast and Moreton Bay Regional Councils to form Unitywater in January 2010; 'Project Paramount' was initiated by Unitywater as part of the transformation process. The purpose of Project Paramount was to integrate the existing disparate technologies and systems from the two regional councils, in order to establish Unitywater's corporate systems.

Unitywater advised that as it moves into the next stage of its lifecycle, follow up investment is required to sustain the transformation process, with a focus on business improvement and efficiency. The System Enhancements and Improvements program provides a 'vehicle' to promote business improvement and efficiency initiatives that align with the strategic objectives of Unitywater.

For 2012/13, fifteen (15) capital projects have been identified, including two compliance related initiatives and thirteen (13) business improvement/efficiency initiatives, a number of which are 'spend to save' initiatives that will generate a positive return on investment. Overall, a combined twenty four (24) initiatives incurring capital and/or operating expenditure have been proposed for 2012/13.

A.9.2 Key Reference Documentation

Documentation reviewed in respect of this project included:

- *2012/13 Capital Project Review Information Pack*;
- *ISC Budget Analysis*, 8 October 2012;
- *Business Improvement 2012/13 Budget Pack*, 2012;
- *System Enhancement Funding Presentation*, October 2012; and
- *Investment Steering Committee Charter*.

A.9.3 Key Drivers and Obligations

The initiatives within this program of work are driven by both compliance and business efficiency.

A.9.4 Solution Development

As part of the strategic planning process for the 2012/13 budget, a range of initiatives were proposed from within the business that would:

- Support the strategic objectives of the organisation;
- Deliver improvements and efficiencies to the business; and
- Meet compliance objectives.

Due to the fact that the development of these initiatives was part of the strategic planning process, business cases were not developed to support their inclusion;

however, a governance process was established to ensure rigour is applied to the approval and delivery of each of the proposed initiatives.

The governance process is built around an Investment Steering Committee, which is the reviewing and recommending body for all potential investment initiatives proposed within the System Enhancement and Improvement Program.

A.9.5 Project Delivery

In order to secure approval and funding for each initiative, the Investment Steering Committee (ISC) requires the completion of a Strategic Assessment Submission (SAS) which identifies the "*general business problem and the potential project based solution, with general costings and benefits analysis*".

Halcrow was advised that sixteen (16) SAS's (for initiatives requiring capital and/or operating expenditure) have been reviewed and assessed to date. Halcrow reviewed the SAS for the 'mobile device' initiative, which involves trialling a low cost replacement for the existing 'toughbooks' used by field staff. Halcrow found that the SAS is essentially a 'tick box' template document that provides a high level overview of the initiative and an estimate of indicative costs, without providing any detail.

Each SAS is assessed against a number of criteria including; timing; tangible benefits; intangible benefits; risks; the funding envelope; the capacity of the organisation to undertake the project; interdependencies; and potential financial impact.

For a SAS that the ISC considers will deliver potential benefit to the organisation, a Business Case (which includes a full business justification, an options analysis and an NPV analysis) is prepared. Halcrow was advised that three projects (IMS Upgrade, Trade Waste Management System and Demand Revenue Modeller) have had Business Cases completed and have been approved for funding, although none of these were made available for review.

At the time of review, the three approved initiatives were at an early stage of development and still in the 'project initiation phase'. As highlighted above, the program also includes a number of compliance based initiatives that are required to meet specific regulatory requirements, and Halcrow was advised that four such initiatives were also being progressed (two involving capital expenditure).

A.9.6 Cost Estimate

At the time of review, 'budget' cost estimates had been assigned to each of the initiatives, based on high level estimates from each of the initiatives' originators.

Of the $4.250 million (excluding overhead allocation and interest charge) estimated expenditure, approximately $1.00 million has been allocated to specific initiatives, with the balance allocated amongst the remaining capital initiatives.

A.9.7 Implications for Operating Expenditure

On the basis that the program is primarily driven by the requirement to generate a positive return on investment, each initiative will have a positive impact on operating expenditure. However, as highlighted above, the initiatives are still in their infancy and the implication for operating expenditure has not yet been assessed.

A.9.8 Assessment of Prudence and Efficiency

The System Enhancements and Improvements Program is a disparate grouping of relatively low value initiatives that deliver both business efficiency and compliance related objectives. Halcrow recognises the need for a water business to drive efficiency into its business operation and to seek business improvement, and on this basis consider a 'spend to save' type capital program to be prudent.

However, Halcrow is unsure as to why the compliance based initiatives have been included within this project. Whilst it may be good practice to apply the same level of rigour to these initiatives through the ISC, the fact that their delivery is mandatory, means they will not have been assessed against the same economic criteria.

Halcrow considers assessment of the efficiency of this program to be quite difficult. At the time of review, the program was still in its infancy and the project scope for each of the initiatives had not yet been adequately defined. Accordingly, the overall costs may be under or overstated. The costs will only become fully apparent as full scopes of work are developed for each initiative. Notwithstanding, as the driver for many of the initiatives is business improvement and efficiency, with the requirement to generate a positive return on investment, the program is likely to be efficient.

Halcrow recognises the benefits of a 'spend to save' type program of work, however, as there is still some uncertainty over the scope and nature of this program, Halcrow recommends that the budgets and expenditure are carefully monitored as much of the associated capital expenditure is speculative and the funding required could vary considerably from the estimates given.

A.9.9 Assessment of Reported Expenditure

In the supporting documentation for its Interim Price Monitoring Submission, Unitywater has identified actual and proposed expenditure in respect of the System Enhancements & Improvements project amounting to $4,792 million ($nominal) over the five (5) year period 2010/11 to 2014/15, with the entire $4.792 million ($nominal) forecast to be incurred in 2012/13; the total project cost is reported as $4.792 million ($nominal). The proposed expenditure profile is shown in **Table A.26**.

Table A.26: Actual and Forecast Capital Expenditure ($'000 nominal) - System Enhancements & Improvements

Expenditure Profile ($value)	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Unitywater Forecast Expenditure Profile	0	0	4,792	0	0	4,792
Proposed adjustment	-	-	-2,000	+2,000	-	-
Halcrow Recommended Expenditure Profile	0	0	2,792	2,000	0	4,792

Note: Figures are 'as incurred' expenditure and exclude any allowance for capital overhead or borrowing (interest) costs.

Halcrow is surprised that the entire program is forecast to be delivered in a single year, particularly as the program is still at a very early stage of development. On this basis it may be prudent to spread the forecast expenditure over two years, to provide sufficient opportunity to define and then deliver the program.

Accordingly, it is recommended that the forecast expenditure be re-profiled to spread the expenditure over a two year period as shown in **Table A.26**.

Appendix B. Assessment of Capital Projects

A detailed summary of Halcrow's assessment of capital expenditure is presented in this Appendix.

Unitywater - Capital Project Assessment

Project	Unitywater Project ID	Region	Service		Total Project Cost	2010/11	2011/12	2012/13	2013/14	2014/15	Total Forecast Cost 2010/11 to 2014/15
Mary River Road, Cooroy - Cooroy STP Upgrade	2	Sunshine Coast	Waste-water via Sewer	Unitywater Forecast	20,665	1,936	13,926	4,356	0	0	20,218
				Proposed adjustment		-	-3,062	2,126	-	-	-936
				Halcrow Recommended	19,428	1,936	10,864	6,482	0	0	19,282
Sippy Downs - Town Centre Trunk Sewer Main	11	Sunshine Coast	Waste-water via Sewer	Unitywater Forecast	4,212	61	781	3,366	0	0	4,208
				Proposed adjustment		-61	-75	-710	-	-	-844
				Halcrow Recommended	3,364	0	706	2,658	0	0	3,364
Communications Infrastructure Upgrade Program	74	Moreton Bay	Waste-water via Sewer	Unitywater Forecast	4,790	143	2,079	2,558	0	0	4,780
				Proposed adjustment		-	-	920	-	-	920
				Halcrow Recommended	5,710	143	2,079	3,478	0	0	5,700
Redcliffe Wastewater Pumping Station PS20X	178	Moreton Bay	Waste-water via Sewer	Unitywater Forecast	4,108	353	1,623	1,906	0	0	3,883
				Proposed adjustment		-353	-772	1,342	-	-	217
				Halcrow Recommended	4,100		851	3,248	0	0	4,100
Brendale WWTP Upgrade (Stage 3)	182	Moreton Bay	Waste-water via Sewer	Unitywater Forecast	13,337	896	10,651	1,108	0	0	12,655
				Proposed adjustment		-	-	-927	-	-	-927
				Halcrow Recommended	11,728	896	10,651	181	0	0	11,728
Upgrade Woodford Wastewater Treatment Plant	186	Moreton Bay	Waste-water via Sewer	Unitywater Forecast	16,612	592	8,314	5,721	0	0	14,626
				Proposed adjustment		-	-2,080	-606	-	-	-2,685
				Halcrow Recommended	13,505	592	6,234	5,115	0	0	11,941
Consolidated Asset Management System (CAMS)	459	Moreton Bay	Other	Unitywater Forecast	5,332	208	3,748	1,362	0	0	5,317
				Proposed adjustment		-	-	298	-	-	298
				Halcrow Recommended	5,630	208	3,748	1,660	0	0	5,616
GIS Establishment Project	460	Moreton Bay	Other	Unitywater Forecast	6,959	0	3,416	3,543	0	0	6,959
				Proposed adjustment		-	-506	-296	-	-	-802
				Halcrow Recommended	6,150	0	2,910	3,247	0	0	6,157
System Enhancements & Improvements	1182	Moreton Bay	Other	Unitywater Forecast	4,792	0	0	4,792	0	0	4,792
				Proposed adjustment		-	-	-2,000	2,000	-	-
				Halcrow Recommended	4,792	0	0	2,792	2,000	0	4,792
Total (Sampled Projects)				Unitywater Forecast		4,189	44,538	28,712	0	0	77,438
				Proposed adjustment		-414	-6,495	147	2,000	0	-4,759
				Halcrow Recommended		3,775	38,043	28,861	2,000	0	72,680
				Percentage adjustment		-9.9%	-14.6%	0.5%	n/a	-	-6.1%
Total Forecast (by sampled region/service)		Sunshine Coast	Waste-water via Sewer	Unitywater Forecast							
				Proposed adjustment		-61	-3,137	1,416	-	-	-1,780
				Halcrow Recommended							
		Moreton Bay	Waste-water via Sewer	Unitywater Forecast							
				Proposed adjustment		-353	-2,852	729	-	-	-2,475
				Halcrow Recommended							
		Moreton Bay	Other	Unitywater Forecast							
				Proposed adjustment		-	-506	-1,998	2,000	-	-504
				Halcrow Recommended							
Total Forecast				Unitywater Forecast		126,310	203,414	314,384	212,230	84,975	941,313
				Proposed adjustment		-414	-6,495	147	2,000	0	-4,759
				Halcrow Recommended		125,896	196,919	314,531	214,230	84,975	936,551

Appendix C. Assessment of Capital Projects

An update of progress in respect of capital projects previously reviewed under the Interim Price monitoring process is presented in this Appendix.

Table C.1: Update of Previously Reviewed Capital Projects

	Project	Total In Review Year	Total	Prudent	Efficient	Revised Cost 2011-12	Revised Cost 2012-13	Variance 2011-12 to 2012-13	UW Proj No	As Commissioned	Reported Total	2010/11	2011/12	2012/13	2013/14	2014/15	Clarification of sourced data	Halcrow Comment
2010-11	Nambour STP	0.0	52.7	Prudent	Efficient	52.7	52.848	0.3%	20	53,185,968	52,848,359	605,870	795,826	9,010,498	42,436,166	0		Marginal increase in forecast total cost; project timeline appears to have extended by 12 months, with majority (80%) of expenditure now in 2013/14.
2010-11	South Caboolture Wastewater Treatment Plant Upgrade and Augmentation (Stage 2)	38.1	42.5	Prudent	Efficient	46	43.424	-5.6%	189	53,163,562	43,423,830	34,234,802	7,180,707	2,008,321	0	0		Reduction in forecast cost amounting to »$2.6 million compared to 2011/12 estimate. Current forecast is approximately $0.9 million gretaer than 2010/11 forecast, and shows some re-profiling (deferment) of expenditure, albeit within the same timeframe.
2010-11	Noosa STP	13.7	37.1	Insufficient Information	Insufficient Information	13.7	25.256	84.4%	1	-	25,256,028	61,015	165,686	257,173	614,012	24,158,142	Identified as "Wallum Ln, NOOSA HEADS - Noosa Heads STP Augmentation".	Substantial ($11.5 million) increase in forecast cost, however, $13.7 million related to 2010/11 only (total project cost was forecast as $37.1 million); expenditure has been deferred with majority now in 2014/15 compared to previous timeline of 2010/11 and 2011/12.
2010-11	Kawana STP	0.0	31.5	Insufficient Information	Insufficient Information	13.7	13.921	1.6%	306	-	13,920,640	0	0	1,178,342	5,068,925	7,673,373	Identified as "KAWANA STP, Stage 5 Augmentation". Note: there are numerous Kawana STP projects listed; this project selected on the basis of description in previous review report and forecast expenditure	Marginal increase in forecast total cost of future project; expenditure appears to have been deferred.
2010-11	Burpengary Wastewater Treatment Plant Stage 2 Augmentation	22.4	22.4	Prudent	Efficient	22.4	23.375	4.4%	187	68,830,388	23,375,334	18,202,100	4,740,238	432,996	0	0		Approximately $1 million increase in forecast total cost; delivery timeline has been extended from 2010/11 forecast.
2010-11	Moreton Bay Water/Sunshine Coast Water - Heavy Vehicle Fleet Replacement	6.2	9.5	Insufficient Information	Insufficient Information	6.2	2.206	-64.4%	485	2,206,419	2,206,419	265,093	737,565	265,400	380,601	557,760	Indicates related to Moreton Bay.	Significant decrease in forecast total cost; may reflect change of drivers (policy) in respect of ongoing replacement program.
2010-11	600mm water main - P001	0.2	7.6	Prudent	Efficient	7.6	0.008	-99.9%	529	7,987	7,987	7,595	392	0	0	0	Identified as "Savilles Rd NAMBOUR - Water Main 600mm P001".	Minimal cost only; assume project did not proceed.
2010-11	Water Meter Replacement- 20mm Meters	1.6	5.1	Insufficient Information	Insufficient Information	1.6	1.077	-32.7%	493	1,076,825	1,076,825	1,076,700	126	0	0	0		Approximately $0.5 million decrease in outturn cost; may reflect change of drivers (policy) in respect of replacement program (it is noted that 2010/11 forecast included expenditure of $1.6-1.7 million in each year).
2010-11	Water Supply Service Reservoir, Boundary Road Reservoir No 3 (24ML)	0.5	5.0	Removed	Removed	0	-	-		-	-	-	-	-	-	-	Unitywater advised that this project has been removed from the capital program as the Water Grid Manager instructed that supply is to be made via an alternative point.	Acknowledged.
2010-11	Water Supply Facilities - Switchboard Replacement Program	0.7	4.7	Prudent	Efficient	4.7	0.000	-100.0%		-	0	0	0	0	0	0		Project title suggests possible ongoing program; current expenditure suggests that has now been cancelled (or otherwise captured).
2010-11	Water Main WM-NLC (500mm x 2800m) Offtake and supply main from Northern Interconnected Pipeline.	2.0	4.3	Removed	Removed	0	-	-		-	-	-	-	-	-	-	Unitywater advised that this project has been removed from the capital program as the Water Grid Manager instructed that supply is to be made via an alternative point.	Acknowledged.
2010-11	WPS Pump Replacement	0.1	0.2	Insufficient Information	Insufficient Information	0.08	0.204	154.9%	559	203,893	203,893	106,699	97,194	0	0	0	Also similarly listed projects: - Project No 49 "WPS Pump Replacement 12/13"; and - Project No 50 "WPS Pump Replacement Future" (expenditure in subsequent years).	Very significant relative increase; may reflect increased focus and further development of what appears to have evolved into an ongoing replacement program (albeit captured as three separate projects).
2010-11	Water Main Hakae Ct / Areca Ct, Narangba (150mm x 114m)	0.0	0.1	Prudent	Efficient	0.1	0.069	-31.0%	717	69,015	69,015	15,776	53,239	0	0	0		Significant reduction in outturn cost (compared to forecast).
2011-12	Burpengary Wastewater Treatment Plant Stage 2 Augmentation	59.0		Prudent	Efficient – estimate adjusted for actual costs	58.217	23.375	-59.8%	187	68,830,388	23,375,334	18,202,100	4,740,238	432,996	0	0	AS ABOVE	AS ABOVE
2011-12	South Caboolture STP Upgrade and Augmentation (Stage 2)	51.0		Prudent	Efficient	51.013	43.424	-14.9%	189	53,163,562	43,423,830	34,234,802	7,180,707	2,008,321	0	0	AS ABOVE	AS ABOVE
2011-12	Customer Services and Billing Solution Project	8.6		Prudent	Efficient	8.571	8.012	-6.5%	821	8,011,960	8,011,960	294,168	7,717,792	0	0	0		Approximately $0.5 million reduction in outturn cost (compared to forecast).
2011-12	Fleet-Light	5.9		Prudent	Efficient	5.883	16.566	181.6%	484	16,565,516	16,565,516	27,269	6,276,543	4,440,207	2,332,743	3,488,753	Identified as "Light Vehicle Fleet Replacement".	Very significant increase in what is assumed to be an ongoing replacement program; may reflect a change in drivers (policy).
2011-12	Upgrade Wastewater Pump Station MF01	5.7		Prudent	Efficient	5.702	0.748	-86.9%	1018	6,353,465	747,564	210,289	537,275	0	0	0		Very significant reduction; likely to reflect a revised scope of work.
2011-12	Kedron Brook Sewerage Catchment - New Sewerage Rising Main RMN260	5.1		Prudent	Efficient – estimate adjusted for approved costs	4.711	5.499	16.7%	1048	5,659,376	5,498,861	2,076,441	3,422,420	0	0	0	Identified as "Murrumba Downs Sewerage Catchment Rising Main RMN260".	Significant ($0.8 million) increase in outturn cost (compared to forecast).
2011-12	Sewer Rising Main, Burpengary Creek to Burpengary East STP (525mm x 2880m)	4.9		Prudent	Efficient	4.855	3.791	-21.9%	1069	5,074,188	3,791,320	3,199,513	591,808	0	0	0		Significant (»$1 million) reduction in outturn cost; may reflect change of scope or efficiency.
2011-12	Sewer Rising Main RMN-BI01 (375mm x 2900m)	4.2		Prudent	Efficient	4.152	3.733	-10.1%	1014	4,463,028	3,732,698	3,664,794	67,904	0	0	0		Significant (»$0.4million) reduction in outturn cost; may reflect change of scope or efficiency.
2011-12	Ngungun St, Landsborough - Water Pump Station	0.7		Prudent	Efficient – commissioned in 2013	0	0.934	-	78	939,257	934,163	1,550	66,880	4,668	861,065	0		Given forecast commissioning date, not apparent why "Revised Cost 2011/12" shown as zero; it is also noted that further expenditure of $0.8 million is forecast in 2013/14.
2011-12	Coolum STP Augmentation	0.4		Prudent	Efficient – commissioned in 2014	0	1.003	-	86	-	1,003,385	244,449	315,313	0	216,219	227,403		Given forecast commissioning date, not apparent why "Revised Cost 2011/12" shown as zero; it is also noted that further expenditure of $0.23 million is forecast in 2014/15.
						311.884	**269.473**	-13.6%		Note: data taken from 2012/13 Interim Price Monitoring Return - Data Template Worksheet 5.6.2.								