

The Allen Consulting Group

Water Industry Structure Study

Analysis of Alternative Reconfiguration Options in the
South-West of Western Australia

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Report to the Economic Regulation Authority and the Joint Utilities Working Group

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Executive summary

Introduction

The Allen Consulting Group was engaged by the Economic Regulation Authority (the Authority) to undertake an analysis of the potential cost savings associated with alternative organisational structures for operating water and wastewater schemes in the South West region around Bunbury and Busselton (collectively referred to as the ‘South West water industry schemes’).

Background

In July 2007, the Authority commenced an Inquiry into Competition in the Water and Wastewater Services Sector. It issued a Draft Report on 3 December 2007, with Finding 17 stating:

“There may be potential significant cost savings from the reconfiguration of water and wastewater services in the Bunbury and Busselton areas. However, further investigation prior to the release of the final report is required before any definitive conclusions can be made.”

The Authority also commented that:

“The remaining relevant matters raised in the ACIL Tasman report relate to Aqwest and the Busselton Water Board. The finding that there appears to be little benefit from combining water with wastewater operations supports the current water only structure of the water boards. However, the finding that there may be cost savings from a reconfiguration of operations in the Bunbury/Busselton area deserves further investigation.”

Project objectives

The objective of the analysis undertaken by the Allen Consulting Group was to identify whether any of a number of alternative organisational structures for operating the South West water industry schemes had the *potential* to achieve operating cost efficiencies compared with the current arrangements.

Our scope of work was to undertake a *high-level* analysis of the potential cost efficiencies associated with operating the South West water industry schemes by examining the cost of operating water and wastewater services in Bunbury, Busselton and *adjacent* areas under each of the alternative structures.

Findings

Our analysis indicated that only two of nine alternative organisational structures for operating the South West water industry schemes have the *potential* to generate cost-efficiencies.

- Entity 7, which would see Aqwest and Busselton Water’s current water operations merged into a single entity, was estimated to potentially generate:
 - *annual ongoing cost efficiencies* of around \$595,200 (2007-08 base year), equivalent to around 5.6 per cent of the two organisations’ combined operating budgets (of around \$10.7 million in 2007-08); or
 - *total cost efficiencies* summing to around \$8.3 million in present value terms over 20 years including transition costs.

- Entity 9, where Aqwest and Busselton Water's current water operations would be merged into the Water Corporation, was estimated to potentially generate:
 - *annual ongoing cost efficiencies* of around \$2.6 million (2007-08 base year), equivalent to 7.1 per cent of the three organisations' combined operating budgets (of around \$36.8 million in 2007-08)¹; or
 - *total cost efficiencies* summing to around \$36.7 million in present value terms over 20 years including transition costs.

Each of the remaining alternative organisational structures was estimated to result in an *increase* in costs. The main reason for the increase in costs is diseconomies of scale and scope with the alternative structures. The increase in operating costs associated with the remaining alternative organisational structures, other than for Entity 8, was estimated to be in the region of three to six per cent.

The 12 water and wastewater schemes that would be operated by Entity 8 was almost sufficient to maintain economies of scale and scope, and was estimated to results in an increase in operating costs of just 1.6 per cent.

Conclusions

Our analysis indicates there exists *potential* for cost efficiencies to be realised through either combining the operations of Aqwest and Busselton Water (Entity 7), or alternatively through rolling the operations of these two entities into the Water Corporation (Entity 9).

Our analysis also suggests that cost efficiencies are *not* expected to arise as a result of combining:

- other South West water schemes with either the operations of Aqwest or Busselton Water (Entities 1 and 4); or
- South West waste water schemes with either the operations of Aqwest or Busselton Water (Entities 2 and 5); or
- South West water and waste water schemes with either the operations of Aqwest or Busselton Water (Entities 3 and 6).
- South West water and waste water schemes with a combined Aqwest *and* Busselton Water entity (Entity 8).

We note that our analysis represents a *high-level* analysis of the *potential* for alternative organisational structures to achieve operating cost efficiencies compared with current arrangements. The estimated cost efficiencies associated with Entity 7 and Entity 9 were in the order of six to seven per cent, while the cost *inefficiencies* associated with the remaining entities was in the order of three to six per cent.

These findings do not suggest that potentially *significant* cost efficiencies (or inefficiencies) would result due to any of the nine alternative organisational structures that were analysed.

¹ The operating budget for the Water Corporation relates to the sum of the operating and allocated costs for each of the water and wastewater schemes that are the subject of the analysis.

Consequently, prior to a decision being made to adopt a particular alternative organisational structure for operating the South West water industry schemes the following would be necessary to confirm our findings and conclusions.

- A more detailed analysis of the organisation's scope of operations, required competencies and capabilities.
- A detailed financial analysis, including consideration and quantification of future capital and operating efficiencies.
- Consideration of, and consultation with affected stakeholders on, the intangible costs and benefits that may be associated with the implementation of the alternative organisation.

On this last point, Aqwest and Busselton Water have both indicated that residents of Bunbury and Busselton have a strong affinity with each organisation. Consequently, the perceived intangible costs that may be associated with the adoption of an alternative organisational structure that results in either the Bunbury or Busselton water schemes being operated by an organisation that is perceived not to be locally based and focused (as may occur under either Entity 7 or Entity 9) would need to be carefully considered.

Finally, we note that the current organisational structures for operating the South West water schemes do not necessarily preclude the achievement of ongoing operating cost efficiencies. Evidence of this includes:

- participation by Aqwest, Busselton Water and the Water Corporation in the Joint Utilities Forum, which facilitates sharing of information and expertise between the three organisations;
- the exploration of opportunities for interconnections between their respective water schemes to enhance security of supply and to optimise future capital investment; and
- the opening by the Water Corporation of its water industry competency training courses to staff from Aqwest and Busselton Water.

Chapter 1

Background

1.1 Introduction

In July 2007, the Economic Regulation Authority (the Authority) commenced an Inquiry into Competition in the Water and Wastewater Services Sector. The Inquiry's Terms of Reference and key areas of focus were as follows.

- Introducing greater efficiency in developing and delivering new water sources and other services requiring significant capital investment. This will include looking at issues associated with current market structures and mechanisms to increase competition, diversity and innovation.
- Opportunities for enhanced competition including through the introduction of third party access to existing water and wastewater related infrastructure.
- Other reforms to the water and wastewater market which may enhance competition, including issues associated with establishing water trading mechanisms, and arrangements for community service obligations paid by the State Government to service providers.

The Authority issued a Draft Report on 3 December 2007. Finding 17 of the Draft Report stated:

“There may be potential significant cost savings from the reconfiguration of water and wastewater services in the Bunbury and Busselton areas. However, further investigation prior to the release of the final report is required before any definitive conclusions can be made.”

The Authority also stated on page 84 of the Draft Report:

“The remaining relevant matters raised in the ACIL Tasman report relate to Aqwest and the Busselton Water Board. The finding that there appears to be little benefit from combining water with wastewater operations supports the current water only structure of the water boards. However, the finding that there may be cost savings from a reconfiguration of operations in the Bunbury/Busselton area deserves further investigation.”

1.2 Scope of work

The Allen Consulting Group was engaged by the Authority to further investigate Finding 17 by undertaking an analysis of the potential cost savings associated with alternative organisational structures for operating water and wastewater schemes in the South West region around Bunbury and Busselton (collectively referred to as the ‘South West water industry schemes’).

The objective of the analysis was to identify whether any of a number of alternative organisational structures for operating the South West water industry schemes have the *potential* to achieve operating cost efficiencies compared with the current arrangements.

Our scope of work was to undertake a *high-level* analysis of the potential cost savings associated with operating the South West water industry schemes by examining the cost of operating water and wastewater services in Bunbury, Busselton and *adjacent* areas under the following alternative organisational structures.

- *Entity 1* — formed from Aqwest’s current operations combined with the Water Corporation’s water operations in adjoining or nearby schemes, including Dalyellup and Eaton/Australind.
- *Entity 2* — formed from Aqwest’s current operations combined with the Water Corporation’s wastewater operations in Bunbury.
- *Entity 3* — formed from Aqwest’s current operations combined with the Water Corporation’s wastewater operations in Bunbury and water and wastewater operations in adjoining or nearby schemes.
- *Entity 4* — formed from Busselton Water’s current operations combined with the Water Corporation’s water operations in adjoining or nearby schemes, including Dunsborough.
- *Entity 5* — formed from Busselton Water’s current operations combined with the Water Corporation’s wastewater operations in Busselton.
- *Entity 6* — formed from Busselton Water’s current operations combined with the Water Corporation’s wastewater operations in Busselton and water, and wastewater operations in adjoining or nearby schemes.
- *Entity 7* — Aqwest and Busselton Water’s current water operations merged into a single entity.
- *Entity 8* — Aqwest, Busselton Water and the Water Corporation’s current operations in or nearby Bunbury and Busselton merged into a single entity.
- *Entity 9* — Aqwest and Busselton Water’s current operations merged into the Water Corporation.

The Authority requested that in undertaking this analysis, the Allen Consulting Group work with, and draw on the expertise of, the Joint Utilities Working Group (the Working Group), which is made up of senior representatives from Aqwest, Busselton Water and the Water Corporation.

1.3 Structure of this report

The remainder of our report is structured as follows:

- In *Chapter 2*, we identify the precise water and wastewater schemes that are included within each of the nine alternative organisational structures, and outline the method we adopt for estimating the potential cost savings.
- We present our findings and conclusions in *Chapter 3*.

Chapter 2

Method and approach

2.1 Introduction

The Allen Consulting Group was engaged by the Authority to undertake an analysis of the potential cost efficiencies that may be achieved under alternative organisational structures for operating the South West water industry schemes.

The objective of the analysis was to identify whether any of a number of alternative organisational structures for operating the South West water industry schemes have the *potential* to achieve operating cost efficiencies compared with the current arrangements. The scope of work made specific reference to alternative organisational structures for operating water and wastewater schemes in Bunbury, Busselton and *adjacent* areas.

It appears that the Authority intended these *adjacent* areas to include at least Dalyellup, Eaton/Australind and Dunsborough, but were not specifically limited to these areas. Consequently, the first task was to determine the precise water and wastewater schemes that would be included within each of the nine alternative organisational structures set out in the scope of work.

The second task was to develop a method for estimating the potential cost savings associated with each of the alternative organisational structures for operating the South West water industry schemes compared with the current arrangements.

The approach adopted with respect to these two tasks is discussed in more detail below.

2.2 Schemes to be analysed

As noted above, the scope of work referred to water and wastewater schemes in Bunbury, Busselton and *adjacent areas*. These adjacent areas appear to be intended by the Authority to include *at least* Dalyellup, Eaton/Australind and Dunsborough.

Figure 2.1 provides an overview of towns and localities in the vicinity of the City of Bunbury and the Shire of Busselton, and of adjacent water and wastewater schemes.

Figure 2.1

WATER AND WASTEWATER SCHEMES ADJACENT TO BUNBURY AND BUSSELTON

Source: Water Corporation

Based on the geographic proximity of schemes in areas *adjacent* to Bunbury and Busselton, the Working Group determined that the following schemes should form part of each alternative organisational structure to be analysed.

- *Entity 1*
 - Bunbury water scheme
 - Dalyellup water scheme
 - Eaton/Australind water scheme
- *Entity 2*
 - Bunbury water scheme
 - Bunbury/Dalyellup wastewater scheme

- *Entity 3*
 - Bunbury water scheme
 - Dalyellup water scheme
 - Eaton/Australind water scheme
 - Bunbury/Dalyellup wastewater scheme
 - Eaton/Australind wastewater scheme
- *Entity 4*
 - Busselton water scheme
 - Dunsborough/Yallingup water scheme
- *Entity 5*
 - Busselton water scheme
 - Busselton wastewater scheme
- *Entity 6*
 - Busselton water scheme
 - Dunsborough/Yallingup water scheme
 - Busselton/Dunsborough wastewater scheme
- *Entity 7*
 - Bunbury water scheme
 - Busselton water scheme
- *Entity 8*
 - Bunbury water scheme
 - Busselton water scheme
 - Dalyellup water scheme
 - Eaton/Australind water scheme
 - Capel water scheme
 - Boyanup water scheme
 - Peppermint Grove Beach water scheme
 - Dunsborough/Yallingup water scheme
 - Bunbury/Dalyellup wastewater scheme
 - Eaton/Australind wastewater scheme
 - Busselton/Dunsborough wastewater scheme
 - Capel wastewater scheme

- *Entity 9*
 - Bunbury water scheme and Busselton water scheme to be rolled into the Water Corporation.

Appendix A and Appendix B, respectively, provide a detailed overview and description of each of the above water and wastewater schemes.

The Working Group considered the possible inclusion of a number of other water schemes as part of one or more of the alternative organisational structures. For example, water supply scheme in the towns of Burekup, Roelands and Brunswick Junction are interconnected with the Eaton/Australind water scheme, and hence might have been included in one or more of the alternative organisational structures. In addition, the Donnybrook and Bridgetown water schemes are geographically close to other schemes that have been included in the analysis.

The Working Group decided to exclude these schemes to avoid making the analysis overly complex at this stage. Should a proposal to adopt an alternative organisational structure for the operation of the South West water industry schemes proceed, it would be prudent to give further consideration to the schemes that should be operated by each entity.

For example, the Water Corporation suggested that further broadening the scope of the restructuring contemplated as part of creating Entity 8 might generate operating cost efficiencies by allowing the Water Corporation to abolish its South West business unit as remaining operations could be absorbed into other business units.

2.3 Method

The objective of the analysis undertaken by the Allen Consulting Group was to identify whether any of a number of alternative organisational structures for operating the South West water industry schemes have the *potential* to achieve operating cost efficiencies compared with the current arrangements.

The method that has been adopted in the analysis is discussed in the following sections.

Identify the staff required to operate each of water and wastewater schemes under the existing organisational structures

This information was obtained from the entity that currently operates each of the schemes.

Aqwest and Busselton Water each operate a single water scheme, the Bunbury water scheme and the Busselton water scheme respectively. As a result, all of each entity's operational and support staff are applied to the operation of that scheme.

The Water Corporation operates all the other schemes considered in the analysis. While it provided estimates of the number of direct full time equivalent (FTE) staff required to operate each scheme (for example, the number of water treatment plant operators), it was unable to directly link support staff (for example, staff providing regulatory compliance services) to individual schemes. Instead the cost of such staff (and other overheads) is allocated across schemes based on assumed cost drivers (as discussed below).

A summary of the staff required to operate each of the schemes can be found in Chapter 3, Appendix A and Appendix B

Establish the financial cost of operating each of the water and wastewater schemes under the existing organisational structures

This information was obtained from the entity that currently operate each of the schemes.

Financial information was obtained from Aquwest and Busselton Water 2005-06 and 2006-07 financial statements. As each of these entities operates a single scheme, there was no requirement to allocate costs between schemes.

Table 2.1

WATER CORPORATION — COST ALLOCATORS

Category	Item	Basis of Allocation
Corporate overheads	• CEO Division	• No. of FTEs
	• Communications	• No. of service assessments
	• Finance (except Pricing)	• No. of FTEs
	• Pricing	• No. of service assessments
	• Infrastructure Management	• No. of service assessments
	• Land Development	• Average no. of lots cleared
	• Information services	• No. of FTEs
	• Corporate HR	• No. of FTEs
	• Environmental projects	• No. of FTEs
	• Procurement	• No. of service assessments
	• Water use efficiency	• No. of service assessments
	• Asset Management	• Asset value
	• Business Services	• No. of FTEs
		• Operations and Maintenance expenditure
		• No. of service assessments
Divisional overheads	• CSD Divisional Management	• No. of FTEs
	• Customer Centre	• No. of service assessments
	• Development Services	• No. of FTEs
	• Service Delivery	• No. of FTEs
	• Operations Centre	• Fixed % 1:1
Regional Support	• SW Regional Management	• Operations and Maintenance expenditure
	• SW Assets Supp Group	• No. of service assessments
	• SW Regional Projects	• Operations and Maintenance expenditure
	• Water Support SW	• No. of service assessments
	• Wastewater Support SW	• No. of service assessments

Source: Water Corporation

The Water Corporation supplied information on the direct financial cost of operating and maintaining each of the schemes, and on indirect costs that had been allocated to each scheme in accordance with the cost allocators reported in Table 2.1 above.

The allocators used by the Water Corporation to distribute costs to schemes appear plausible and not uncommon for a ‘fully distributed costing’ exercise. Nevertheless, the actual cost of serving the different schemes is unlikely to have a one-for-one or possibly even a direct relationship with the relevant cost driver. While we have no *a priori* reason to believe that the Water Corporation’s cost allocators would systematically overstate or understate the cost of operating each scheme, we note that the reliance on these allocators will result in some imprecision in the measurement of actual indirect scheme costs.

We excluded depreciation costs from our analysis as these costs were assumed to be constant irrespective of the organisation that operated each scheme.

A summary of the direct and indirect financial cost of operating each scheme can be found in Appendix A and Appendix B.

Identify the staff required to operate the specified combination of schemes under each of the nine alternative organisational structures

Identify the incremental change in staff associated with each of the nine alternative organisational structures

Members of the Working Group, Aqwest, Busselton Water, the Water Corporation, the Authority and the Allen Consulting Group met in Bunbury on 17 April 2008 to identify the operational and support staff required to operate the specified combination of schemes under each of the nine alternative organisational structures.

The incremental change in staff was identified for each alternative organisational structure by considering the *net* change in staff required to operate the South West water industry schemes under each of the nine alternative organisational structures relative to the current structures.

The operational and support staff for each of the nine alternative organisational structures reported in Chapter 3 represents the consensus view arising out of the meeting on 17 April 2008.

The analysis of staff requirements represents a *high-level* preliminary assessment. Should a proposal to adopt alternative organisational structures for the operation of the South West water industry schemes proceed, a more detailed organisational review and design, together with a detailed due diligence review of each scheme’s operational assets, should be undertaken.

Estimate the change in recurrent costs associated with each of the nine alternative organisational structures

Aqwest, Busselton Water and the Water Corporation provided estimates of the salary or employment package cost associated with each of the roles that would be affected by one or more of the alternative organisational structures.

Where a salary range was provided, the mid-point of the range was used in the analysis. In addition, salary (but not employment package) costs were inflated by 20 per cent to account for staff on-costs such as superannuation and training allowances.

Based on these cost estimates, the total recurrent change in operating costs that would result under each of the alternative organisational structures was estimated.

Identify and estimate one-off and transitional costs that may be associated with the transfer of schemes to each of the nine alternative organisational structures

Should a proposal to adopt an alternative organisational structure for the operation of the South West water industry schemes proceed, there would be costs associated with such a transition. The following transition costs have been estimated and included in the analysis:

- the cost of integrating scientific control and data acquisition (SCADA) systems;
- the cost of data migration, including customer information, and asset and maintenance registers;
- redeployment costs where there was a *gross reduction* in required indirect staff numbers (equivalent to six months' grossed up salary costs);
- other costs (for example, the bringing forward of the construction of replacement administration building in the case of Entities 5 and 6);
- a 10 per cent contingency for other unidentified costs.

Calculate the present value of the sum of changes in recurrent, one-off and transitional costs that may be associated with the transfer of schemes to each of the nine alternative organisational structures

The present value of the change in annual operating costs forecast for 20 years was estimated using a real discount rate of 3.70 per cent. This rate is based on the nominal 10-year government bond rate of 6.29 per cent (Bloomberg quoted rate, market close on 8 May 2008) and converted to a real discount rate using an assumed long term inflation rate of 2.5 per cent (the mid-point of the Reserve Bank of Australia's target range).²

Identify non-financial issues that may be associated with each of the alternative scheme combinations

There are likely to be a number of non-financial issues associated with a restructure of the organisations operating the South West water industry schemes. We have included a (non-exclusive) list of those identified by the Working Group in Chapter 3.

² The Fisher equation is given as follows.

$$R = \left[\frac{(1 + r)}{(1 + i)} \right] - 1$$

where R is the real risk free rate, r is the nominal risk free rate, and i is the rate of inflation.

Chapter 3

Findings and conclusions

3.1 Introduction

In this chapter, we first briefly outline the key assumptions that underpin our analysis. We then present:

- a summary of the estimated operational and support staff required to operate the specified combination of schemes under each of the nine alternative organisational structures;
- a summary of the incremental change in operational and support staff associated with each of the nine alternative organisational structures;
- a summary of the present value of the incremental change in operating costs associated each alternative organisational structures relative to the current structure; and
- a summary of the present value of the transition costs associated each alternative organisational structures relative to the current structure.

3.2 Assumptions underpinning the analysis

The analysis undertaken by the Allen Consulting Group for this report is a *high-level* study examining the *potential* for alternative organisational structures in the South West of Western Australia to achieve cost efficiencies in operating water and wastewater schemes compared with the current arrangements.

The analysis focuses on changes in staff and financial costs that are expected to result *only* from a change in the organisational structure of the entities operating the relevant South West water industry schemes.

A number of simplifying assumptions underpin our analysis. These are discussed in more detail below.

Product and customer service standards

Our analysis assumes that current product and service standards are maintained following the transfer of a South West water industry scheme to an alternative organisation. Key performance indicators such as water quality, pressure, flow, continuity and customer satisfaction measure these standards. We also assume that under Entity 9 a ‘shopfront’ presence and existing levels of customer service staff would be retained in both Bunbury and Busselton.

We also implicitly assume that each of the schemes meets current operating licence and other regulatory and statutory obligations and requirements, and that a change in the scheme operator would not trigger any change in these obligations and requirements.

Operational assets

Our analysis assumes all operational scheme assets are technically sound and safe to operate.

Should a proposal to adopt an alternative organisational structure for the operation of any of the South West water industry schemes proceed, a detailed due diligence review of each affected scheme's operational assets should be undertaken.

Capital efficiencies

Our analysis does not consider future capital efficiencies that might be achieved under any of the alternative organisational structures for operating the South West water industry schemes. For example, it is possible that there may be opportunities to delay, reduce or avoid future capital expenditure by taking advantage of excess capacity that exists in another scheme operated by the same organisation.

Given the high-level nature of the analysis, we consider it reasonable to exclude this potential source of cost-efficiencies at this time as:

- such efficiencies could only arise in connection with water schemes that are, or could be, interconnected with the Bunbury and the Busselton water schemes; and
- such efficiencies may already be reflected in forward capital expenditure programs given Busselton Water and the Water Corporation are close to agreeing an interconnection between the Busselton water scheme and the Dunsborough/Yallingup water scheme, and Aqwest and the Water Corporation are exploring an interconnection between the Bunbury and Dalyellup water schemes.

The Working Group considered and agreed with this approach in order to simplify the analysis.

However, it has been noted that significant cost efficiencies that could have been achieved in the past were forgone in order to promote competition. An example is the Dalyellup water scheme that is operated by the Water Corporation. While the investment in this scheme's water production assets are 'sunk' in an economic sense, significant excess capacity in the adjoining Bunbury water scheme suggests that the water supply requirements in Dalyellup could have been met at little more than the marginal cost of water production through an interconnection. This would have reduced the overall economic cost of supplying water to residents of Bunbury and Dalyellup.

Employment terms and conditions

Where staff are directly employed in operating a scheme's operational assets (for example, water treatment plant operators), our analysis assumes they would continue to be employed in this capacity with the alternative organisation.

We assume that employees' current terms and conditions of employment and accrued entitlements would be preserved and transferred to the alternative organisation.

We allow for a *real* increase in annual labour costs of one per cent per annum.

3.3 Results

The results of our analysis are summarised in Table 3.1

Table 3.1

SUMMARY IMPACT OF ALTERNATIVE ORGANISATIONAL STRUCTURES FOR OPERATING THE SOUTH WEST WATER INDUSTRY SCHEMES

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
<i>Operating and support staff</i>									
Total FTEs	46.40	46.10	62.60	32.20	35.00	42.40	53.70	97.50	29.30
Change in FTEs	5.90	5.70	11.40	3.50	5.80	8.20	-6.50	5.30	-32.90
<i>Annual cost efficiencies</i>									
Additional scheme costs	\$460,390	\$399,404	\$855,593	\$284,207	\$447,287	\$666,710	-\$595,167	\$525,612	-\$2,609,911
Current combined budget	\$14,312,949	\$14,136,458	\$21,208,825	\$6,163,679	\$7,398,306	\$11,749,041	\$10,668,915	\$33,379,139	\$36,817,926
Percentage change	3.2%	2.8%	4.0%	4.6%	6.0%	5.7%	-5.6%	1.6%	-7.1%
<i>Present value cost efficiencies (over 20 years)</i>									
Additional scheme costs	\$6,791,435	\$5,891,803	\$12,621,282	\$4,192,478	\$6,598,152	\$9,834,974	-\$8,779,595	\$7,753,557	-\$38,500,081
Transitional costs	\$208,641	\$243,681	\$297,111	\$211,935	\$263,261	\$283,236	\$500,249	\$821,988	\$1,753,476
Change in costs	\$7,000,077	\$6,135,483	\$12,918,393	\$4,404,414	\$6,861,412	\$10,118,210	-\$8,279,345	\$8,575,545	-\$36,746,605

Note: a. Reflects only net additions to the Water Corporation resulting from roll-in of the Bunbury and Busselton water schemes.

Source: Allen Consulting Group based on discussions with Aqwest, Busselton Water and the Water Corporation

As shown in Table 3.2Table 3.1, only Entity 7 (Aqwest and Busselton Water's current water operations merged into a single entity) and Entity 9 (Aqwest and Busselton Water's current water operations merged into the Water Corporation) are expected to result in cost efficiencies.

- We estimated that Entity 7, which would see Aqwest and Busselton Water's current water operations merged into a single entity, had the potential to generate *annual ongoing cost efficiencies* of around \$595,200 (2007-08 base year). This amount is equivalent to a *reduction* of around 5.6 per cent in the two organisations' combined operating budget, which was estimated to be around \$10.7 million in 2007-08.
- The annual ongoing cost efficiencies associated with Entity 7 summed to around \$8.3 million in *present value terms* over 20 years after including transition costs. Just over 82 per cent of these efficiencies are expected to arise from reductions in the number of support staff, particularly board members and senior management.
- Our analysis found that Entity 9, where Aqwest and Busselton Water's current water operations would be merged into the Water Corporation, had the potential to generate *annual ongoing cost efficiencies* of around \$2.6 million (2007-08 base year). This amount is equivalent to a *reduction* of around 7.1 per cent in the three organisations' combined operating budget, which was estimated to be around \$36.8 million in 2007-08.
- For Entity 9, the annual ongoing cost efficiencies summed to around \$36.7 million in *present value terms* over 20 years after including transition costs. Reductions in the number of support staff were estimated to generate around 60 per cent of these cost efficiencies, with the remaining 40 per cent due to reductions in operational staff.

Each of the other alternative organisational structure, which amalgamate the operation of the Bunbury or Busselton water schemes with either additional water schemes or/and wastewater schemes, results in an increase in costs.

The main source of the increase in operating costs appears to be diseconomies of scale and scope associated with these organisational structures. For example, between 60 and 80 per cent of the estimated increase in costs (on a present value basis) in each case can be attributed to an increase in the number of required operational staff.

Entity 8, which would see a new entity created to operate all of the South West water industry schemes that form part of our analysis, would result in a reduction in the number of support staff, leading to significant cost efficiencies. However, it is also estimated that this option would require a substantial increase in the number of operational staff, which would just offset savings in support staff.

We estimate that the potential *annual ongoing cost inefficiencies* associated with Entity 8 would be around \$525,600, which represents an *increase* in the budgets of the three organisations' combined operating budgets of around 1.6 per cent. The present value of these annual ongoing increases in costs, including transition costs, over 20 years is almost \$8.6 million.

Table 3.2

GROSS STAFF REQUIREMENTS OF ALTERNATIVE ORGANISATIONAL STRUCTURES FOR OPERATING THE SOUTH WEST WATER INDUSTRY SCHEMES (BASE YEAR)

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
Scheme operations									
Connections	25,442	28,364	45,923	14,089	18,159	30,123	25,050	55,911	25,050
Volume (ML)	10,537	n/a	n/a	5,274	n/a	n/a	9,027	n/a	9,027
WTP/WWTP	9	n/a	n/a	5	n/a	n/a	10	n/a	10
\$M Capex (to 2011-12)	84.9	40.2	125.1	28.1	37.3	55.9	39.0	55.9	39.0
Direct FTEs									
WTP/WWTP FTEs	7.00	5.00	9.00	4.00	4.00	6.00	7.00	16.00	5.00
Distribution FTEs	12.00	14.00	20.00	5.00	5.50	8.00	12.00	28.00	12.00
<i>Total operating FTEs</i>	<i>19.00</i>	<i>19.00</i>	<i>29.00</i>	<i>9.00</i>	<i>9.50</i>	<i>14.00</i>	<i>19.00</i>	<i>44.00</i>	<i>17.00</i>
Engineering/other	5.00	4.00	6.00	5.00	4.00	6.00	5.00	12.00	3.00
Regulatory compliance	0.00	1.00	1.00	0.00	1.00	1.00	0.00	2.00	0.00
Supervisory/support	4.00	4.00	5.50	3.00	4.00	4.00	8.00	10.00	1.00
<i>Total supervisory/support</i>	<i>10.00</i>	<i>9.00</i>	<i>12.50</i>	<i>8.00</i>	<i>9.00</i>	<i>11.00</i>	<i>13.00</i>	<i>24.00</i>	<i>4.00</i>
Total direct FTEs	29.00	28.00	41.50	17.00	18.50	25.00	32.00	68.00	21.00

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
Indirect FTEs									
CEO	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Management	2.00	2.00	2.00	3.00	3.00	3.00	3.00	3.00	0.00
Personal assistant/Other	1.70	1.70	1.70	2.00	2.00	2.00	1.70	1.00	3.50
Rates (Meter reader)	1.50	1.00	1.50	1.20	1.00	1.20	2.00	3.00	2.00
Rates (Rates)	5.00	5.00	7.00	1.50	1.50	2.00	3.70	6.00	0.00
Rates (Debtors)	0.60	0.60	0.80	1.20	1.20	1.00	1.40	2.50	0.00
Rates (Cashier)	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
Customer service	1.00	1.00	1.00	2.00	2.00	1.50	1.50	1.50	1.50
Accounting (Payroll/Creditors)	3.60	3.60	3.60	2.30	2.30	3.00	5.40	5.00	0.00
Industrial waste monitoring	0.00	1.00	1.00	0.00	1.00	1.00	0.00	2.00	0.00
Scheme development	0.00	0.20	0.50	0.00	0.50	0.70	0.00	1.50	0.30
Total indirect FTEs	17.40	18.10	21.10	15.20	16.50	17.40	21.70	29.50	8.30
TOTAL FTEs	46.40	46.10	62.60	32.20	35.00	42.40	53.70	97.50	29.30

Note: a. Reflects only net additions to the Water Corporation resulting from roll-in of the Bunbury and Busselton water schemes.

Source: Allen Consulting Group based on discussions with Aqwest, Busselton Water and the Water Corporation

Table 3.3

NET CHANGE IN STAFF REQUIREMENTS OF ALTERNATIVE ORGANISATIONAL STRUCTURES FOR OPERATING THE SOUTH WEST WATER INDUSTRY SCHEMES (BASE YEAR)

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
Direct FTEs									
WTP/WWTP FTEs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-2.00
Distribution FTEs	1.00	1.00	1.30	0.50	0.00	0.50	0.00	0.00	0.00
<i>Total operating FTEs</i>	<i>1.00</i>	<i>1.00</i>	<i>1.30</i>	<i>0.50</i>	<i>0.00</i>	<i>0.50</i>	<i>0.00</i>	<i>0.00</i>	<i>-2.00</i>
Engineering/other	2.00	1.00	3.00	2.00	1.00	3.00	-1.00	5.00	-3.00
Regulatory compliance	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00
Supervisory/support	1.00	0.00	1.50	-0.50	1.00	0.50	0.00	2.00	-7.00
<i>Total supervisory/support</i>	<i>3.00</i>	<i>2.00</i>	<i>5.50</i>	<i>1.50</i>	<i>3.00</i>	<i>4.50</i>	<i>-1.00</i>	<i>8.00</i>	<i>-10.00</i>
<i>Total direct FTEs</i>	<i>4.00</i>	<i>3.00</i>	<i>6.80</i>	<i>2.00</i>	<i>3.00</i>	<i>5.00</i>	<i>-1.00</i>	<i>8.00</i>	<i>-12.00</i>

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
Indirect FTEs									
CEO	0.00	0.00	0.00	0.00	0.00	0.00	-1.00	-1.00	-2.00
Management	0.00	0.00	0.00	0.00	0.00	0.00	-2.00	-2.00	-5.00
Personal assistant/Other	0.00	0.00	0.00	0.00	0.00	0.00	-2.00	-2.70	-0.20
Rates (Meter reader)	-0.30	0.00	-0.30	0.00	0.00	0.00	0.00	0.00	0.00
Rates (Rates)	2.00	2.00	4.00	0.50	0.50	1.00	-0.30	2.00	-4.00
Rates (Debtors)	0.20	0.20	0.40	0.20	0.20	0.00	0.00	1.10	-1.40
Rates (Cashier)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-1.00
Customer service	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.00	0.00
Accounting (Payroll/Creditors)	0.00	0.00	0.00	0.30	0.30	1.00	-0.20	-1.60	-5.60
Industrial waste monitoring	0.00	0.50	0.50	0.00	1.00	1.00	0.00	2.00	0.00
Scheme development	0.00	0.00	0.00	0.00	0.30	0.20	0.00	0.50	0.30
Total indirect FTEs	1.90	2.70	4.60	1.50	2.80	3.20	-5.50	-2.70	-20.90
TOTAL FTEs	5.90	5.70	11.40	3.50	5.80	8.20	-6.50	5.30	-32.90

Note: a. Reflects only net additions to the Water Corporation resulting from roll-in of the Bunbury and Busselton water schemes.

Source: Allen Consulting Group based on discussions with Aqwest, Busselton Water and the Water Corporation

Table 3.4

CHANGE IN OPERATING COSTS ASSOCIATED OF ALTERNATIVE ORGANISATIONAL STRUCTURES FOR OPERATING THE SOUTH WEST WATER INDUSTRY SCHEMES (NET PRESENT VALUE OVER 20 YEARS)

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
Direct FTEs									
WTP/WWTP FTEs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$1,947,197
Distribution FTEs	\$973,599	\$973,599	\$1,265,678	\$486,799	\$0	\$486,799	\$0	\$0	\$0
<i>Total operating FTEs</i>	<i>\$973,599</i>	<i>\$973,599</i>	<i>\$1,265,678</i>	<i>\$486,799</i>	<i>\$0</i>	<i>\$486,799</i>	<i>\$0</i>	<i>\$0</i>	<i>-\$1,947,197</i>
Engineering/other	\$3,009,305	\$1,504,652	\$4,513,957	\$3,009,305	\$1,504,652	\$4,513,957	-\$1,504,652	\$7,523,262	-\$4,513,957
Regulatory compliance	\$0	\$1,062,108	\$1,062,108	\$0	\$1,062,108	\$1,062,108	\$0	\$1,062,108	\$0
Supervisory/support	\$1,239,125	\$0	\$1,858,688	-\$619,563	\$1,239,125	\$619,563	\$0	\$2,478,251	-\$8,673,878
<i>Total supervisory/support FTEs</i>	<i>\$4,248,430</i>	<i>\$2,566,760</i>	<i>\$7,434,753</i>	<i>\$2,389,742</i>	<i>\$3,805,885</i>	<i>\$6,195,627</i>	<i>-\$1,504,652</i>	<i>\$11,063,620</i>	<i>-\$13,187,835</i>
<i>Total direct FTEs</i>	<i>\$5,222,029</i>	<i>\$3,540,358</i>	<i>\$8,700,431</i>	<i>\$2,876,541</i>	<i>\$3,805,885</i>	<i>\$6,682,427</i>	<i>-\$1,504,652</i>	<i>\$11,063,620</i>	<i>-\$15,135,033</i>

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
Indirect FTEs									
Board	\$0	\$0	\$0	\$0	\$0	\$0	-\$1,032,605	-\$1,032,605	-\$2,065,209
CEO	\$0	\$0	\$0	\$0	\$0	\$0	-\$1,991,452	-\$1,991,452	-\$3,982,903
Management	\$0	\$0	\$0	\$0	\$0	\$0	-\$2,655,269	-\$2,655,269	-\$7,965,807
Personal assistant/Other	\$0	\$0	\$0	\$0	\$0	\$0	-\$1,177,311	-\$1,589,370	-\$115,062
Rates (Meter reader)	-\$250,984	\$0	-\$250,984	\$0	\$0	\$0	\$0	\$0	\$0
Rates (Rates)	\$1,673,227	\$1,673,227	\$3,346,453	\$453,573	\$453,573	\$907,146	-\$250,984	\$1,673,227	-\$3,346,453
Rates (Debtors)	\$147,164	\$147,164	\$294,328	\$168,634	\$168,634	\$0	\$0	\$809,401	-\$1,030,147
Rates (Cashier)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-\$588,655
Customer service	\$0	\$0	\$0	\$421,586	\$421,586	\$0	\$0	\$0	\$0
Accounting (Payroll/Creditors)	\$0	\$0	\$0	\$272,144	\$272,144	\$907,146	-\$167,323	-\$1,338,581	-\$4,685,034
Industrial waste monitoring	\$0	\$531,054	\$531,054	\$0	\$1,062,108	\$1,062,108	\$0	\$2,124,215	\$0
Scheme development	\$0	\$0	\$0	\$0	\$414,222	\$276,148	\$0	\$690,370	\$414,222
Total indirect FTEs	\$1,569,406	\$2,351,444	\$3,920,851	\$1,315,937	\$2,792,267	\$3,152,548	-\$7,274,943	-\$3,310,063	-\$23,365,048
Total additional costs	\$6,791,435	\$5,891,803	\$12,621,282	\$4,192,478	\$6,598,152	\$9,834,974	-\$8,779,595	\$7,753,557	-\$38,500,081

Note: a. Reflects only net additions to the Water Corporation resulting from roll-in of the Bunbury and Busselton water schemes.

Source: Allen Consulting Group based on information provided by Aqwest, Busselton Water and the Water Corporation.

Table 3.5

TRANSITION COSTS ASSOCIATED OF ALTERNATIVE ORGANISATIONAL STRUCTURES FOR OPERATING THE SOUTH WEST WATER INDUSTRY SCHEMES (NET PRESENT VALUE OVER 20 YEARS)

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
Information systems									
Integration of SCADA systems	\$96,435	\$96,435	\$96,435	\$96,435	\$96,435	\$96,435	\$96,435	\$192,870	\$96,435
Migration of asset data	\$48,218	\$48,218	\$48,218	\$48,218	\$48,218	\$48,218	\$48,218	\$96,435	\$192,870
Migration of customer data from GRANGE	\$23,144	\$23,144	\$23,144	\$23,144	\$23,144	\$23,144	\$23,144	\$38,574	\$96,435
Customer information and billing system (additional licence fees)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Subtotal</i>	<i>\$167,797</i>	<i>\$167,797</i>	<i>\$167,797</i>	<i>\$167,797</i>	<i>\$167,797</i>	<i>\$167,797</i>	<i>\$167,797</i>	<i>\$327,880</i>	<i>\$385,741</i>
Staffing									
<i>Direct FTEs</i>									
Engineering/other	\$0	\$0	\$0	\$0	\$0	\$0	\$49,182	\$0	\$147,546
Regulatory compliance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$34,717	\$0
Supervisory/support	\$0	\$27,346	\$40,503	\$20,251	\$0	\$20,251	\$0	\$81,006	\$283,519
<i>Subtotal</i>	<i>\$0</i>	<i>\$27,346</i>	<i>\$40,503</i>	<i>\$20,251</i>	<i>\$0</i>	<i>\$20,251</i>	<i>\$49,182</i>	<i>\$115,722</i>	<i>\$431,065</i>

	Entity 1	Entity 2	Entity 3	Entity 4	Entity 5	Entity 6	Entity 7	Entity 8	Entity 9 ^a
<i>Indirect FTEs</i>									
Board	\$0	\$0	\$0	\$0	\$0	\$0	\$33,752	\$33,752	\$67,505
CEO	\$0	\$0	\$0	\$0	\$0	\$0	\$65,094	\$65,094	\$130,188
Management	\$0	\$0	\$0	\$0	\$0	\$0	\$86,792	\$86,792	\$260,375
Personal assistant/Other	\$0	\$0	\$0	\$0	\$0	\$0	\$38,482	\$51,951	\$3,761
Rates (Meter reader)	\$21,877	\$0	\$21,877	\$4,620	\$0	\$4,620	\$0	\$27,346	\$0
Rates (Rates)	\$0	\$0	\$0	\$0	\$0	\$0	\$8,204	\$0	\$109,384
Rates (Debtors)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$33,672
Rates (Cashier)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,241
Customer service	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Accounting (Payroll/Creditors)	\$0	\$0	\$0	\$0	\$0	\$0	\$5,469	\$27,346	\$153,138
Industrial waste monitoring	\$0	\$17,358	\$17,358	\$0	\$0	\$0	\$0	\$0	\$0
Scheme development	\$0	\$9,026	\$22,566	\$0	\$9,026	\$22,566	\$0	\$45,132	\$0
<i>Subtotal</i>	<i>\$21,877</i>	<i>\$26,385</i>	<i>\$61,801</i>	<i>\$4,620</i>	<i>\$9,026</i>	<i>\$27,186</i>	<i>\$237,793</i>	<i>\$303,660</i>	<i>\$777,263</i>
Assets									
	\$0	\$0	\$0	\$0	\$68,755	\$68,755	\$0	\$0	\$0
<i>Subtotal</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$68,755</i>	<i>\$68,755</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>
Other									
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Subtotal</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>	<i>\$0</i>
Contingency	\$18,967	\$22,153	\$27,010	\$19,267	\$17,682	\$19,498	\$45,477	\$74,726	\$159,407
Total transition costs	\$208,641	\$243,681	\$297,111	\$211,935	\$263,261	\$283,236	\$500,249	\$821,988	\$1,753,476

Note: a. Reflects only net additions to the Water Corporation resulting from roll-in of the Bunbury and Busselton water schemes.

Source: Allen Consulting Group based on information provided by Aqwest, Busselton Water and the Water Corporation.

3.4 Sensitivity analysis

We did not undertake an analysis of the sensitivity of our results to changes in two key parameters, which were:

- the assumed rate of real wages inflation; and
- the assumed rate of nominal inflation.

These parameters are applied consistently to the incremental increase in base year costs that are estimated for each of the alternative organisational structures, and then projected forward. Hence, a change in either of these parameters will not affect the relative cost efficiencies that are estimated to be associated with each of the alternative organisational structures, although it may change the absolute present value of the cost-efficiencies.

We do not consider a sensitivity analysis would alter our findings or conclusions.

3.5 Other issues

Pricing

The analysis focuses on the potential for alternative organisational structures to achieve cost-efficiencies. Therefore, the analysis excludes consideration of any changes in the level or structure of customer tariffs and charges that may arise as a result of an alternative organisation structure for operating the South West Water industry schemes.

The Working Group has noted that while changes to the organisational structure of the South West water industry schemes could be effected without changes to retail tariffs, there may be pressure to align charging policy within an organisation from an equity, customer service and information system perspective.

In this context, the Water Corporation has advised that its charges are based on a uniform charging policy that results in residential customers using up to 300 kilolitres (kL) of water per annum paying the same price for water regardless of the cost of supply. Under Entity 9, if these uniform charges were to apply to the Bunbury water scheme, this would result in an increase of \$96 per annum, or 35 per cent, for a customer consuming 300kL of water. Similarly, the cost for a customer in the Busselton water scheme would increase by \$92 per annum, or 34 per cent.

It would be difficult to explain to customers that the restructure of the South West water industry schemes was to improve efficiency, if it led to an increase in their bills by one more than a third.

Price changes would also be an issue where the alternative organisational structures incorporated one or more water schemes currently operated by the Water Corporation. For example, it may be difficult to justify continuing to apply the higher state-wide uniform water tariffs for Dalyellup if it became part of an organisation that also operated the Bunbury water scheme. However, as our analysis suggests diseconomies of scale would accompany such a restructure, the reduction in charges to Dalyellup customers would need to be accompanied by an increase in charges for existing customers in the Bunbury water scheme.

Local identity

Since being established early in the 20th century, the Bunbury and Busselton water schemes have been continuously operated by each community's respective local government body and, following to that, by local organisations focussed exclusively on meeting the needs of each community.

Aqwest and Busselton Water have also indicated that the operation of each water scheme and the respective scheme assets have been funded over the years exclusively through revenue from the operation of each scheme. Neither scheme has had recourse to financial support from the State Government.

Consequently, Aqwest and Busselton Water have indicated that residents of Bunbury and Busselton have a strong affinity with each organisation. Consequently, the perceived intangible costs that may be associated with the adoption of an alternative organisational structure that results in either the Bunbury or Busselton water schemes being operated by an organisation that is perceived not to be locally based and focused (as may occur under either Entity 7 or Entity 9) would need to be carefully considered.

Appendix A

Description of South West water schemes

A.1 Introduction

This appendix provides an overview of each of the water schemes in the South West of Western Australia that were included in one or more of the alternative organisational structures. These are as follows (in alphabetical order).

- Boyanup water scheme
- Bunbury water scheme
- Busselton water scheme
- Capel water scheme
- Dalyellup water scheme
- Dunsborough/Yallingup water scheme
- Eaton/Australind water scheme
- Peppermint Grove Beach water scheme

The sections below provide more detail on each of these schemes.

A.2 Boyanup water scheme

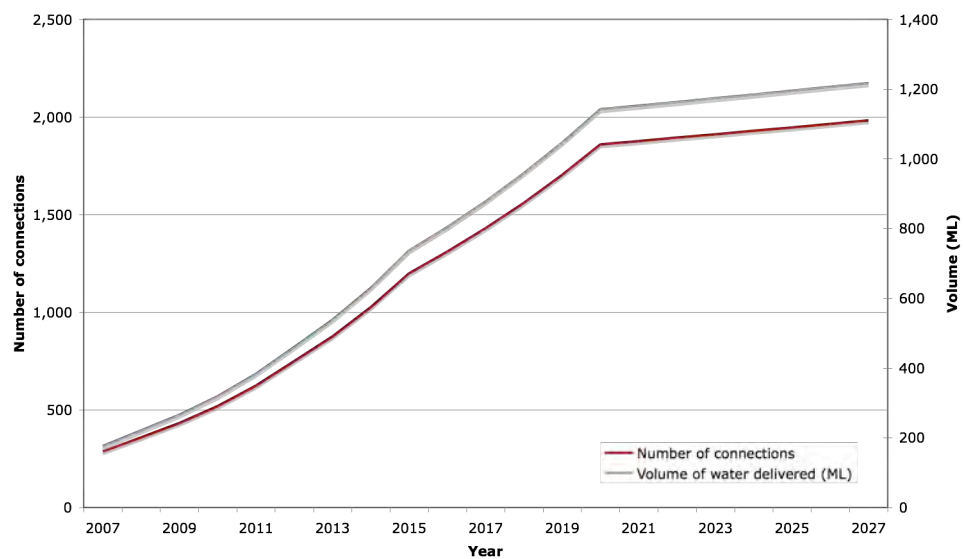
Scheme size and supply

The Water Corporation operates the Boyanup Water scheme, which serves the town of Boyanup, about 21 kilometres south east of Bunbury.

As shown in Figure A.1, the Boyanup water scheme currently has around 360 connections and is expected to deliver around 221 ML of water per annum to scheme customers in 2007-08.³ The Water Corporation estimates that by 2027-28 the number of scheme connections will increase to around 2,000, while the volume of water delivered will reach just over 1,200 ML.

³ A megalitre (ML) is equivalent to a thousand kilolitres (kL), which in turn is equivalent to a thousand litres (L). That is, one ML is a million litres.

Figure A.1

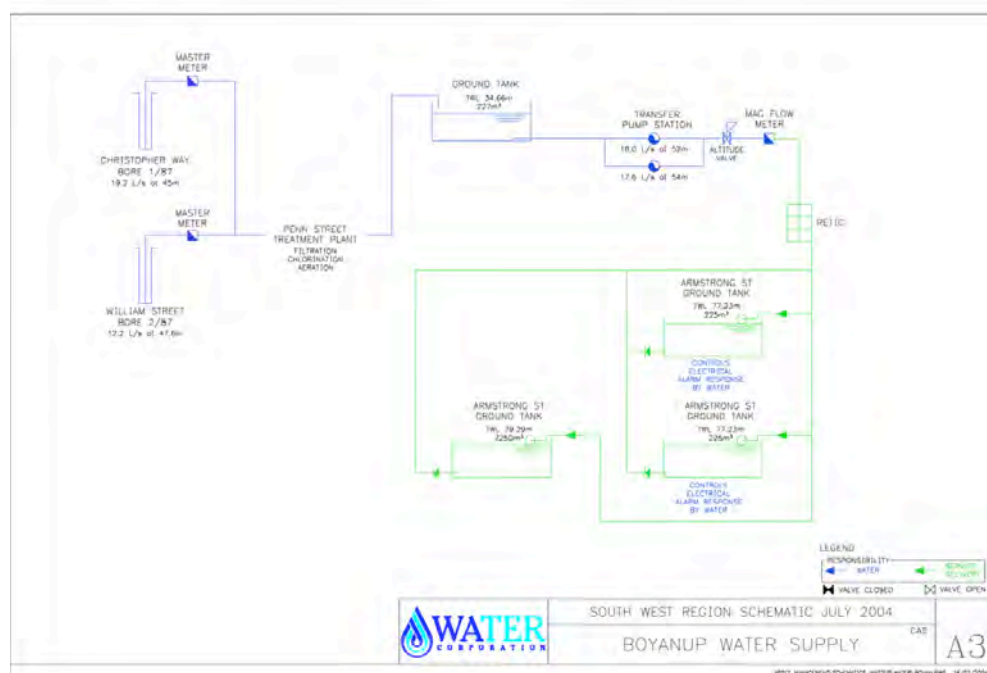
BOYANUP WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY

Source: Allen Consulting Group based on Water Corporation data

Scheme assets

Figure A.2 provides an overview of the Boyanup water scheme infrastructure and the engineering structure.

Figure A.2

BOYANUP WATER SCHEME — ASSETS AND ENGINEERING

Source: Water Corporation

As shown in Figure A.2, the Boyanup water scheme consists of two bores, a water treatment plant and four water storage tanks. The Water Corporation has advised that the two bores and the water treatment plant are currently operating at 83 per cent and 63 per cent of their design capacity respectively.

Given the forecast increase in the volume of water to be delivered by the scheme over the next twenty years (refer Figure A.1), significant investment in additional capacity will be required. At this time, the planned future capital investment information provided by the Water Corporation covers the period to the end of 2010-11, and includes only:

- \$401,000 for 'quality of service' improvements to the Boyanup treatment plant; and
- \$283,000 for 'asset replacement' of the bores.

The Boyanup water scheme is geographically isolated from other water schemes in the South West region, and it is not expected that interconnection with other schemes would be considered during the period to 2028.

Scheme operating costs

Table A.1 provides a summary overview of the 2006-07 operating costs of the Boyanup water scheme.

Table A.1

BOYANUP WATER SCHEME — ANNUAL SCHEME OPERATING COSTS	
	2006-07
Labour	31,734
Dist. Supp. Surc	25,815
Materials	6,705
Energy	18,298
Chemicals	650
Plant and Machinery	1,288
External Service	13,571
Other	6,082
<i>Subtotal</i>	<i>104,143</i>
DEPRECIATION	107,498
TOTAL SCHEME OPERATING COSTS	211,641
Regional (PA)	20,934
Divisional (PA)	41,215
Corporate (PA)	83,029
Other Direct Scheme costs	10,198
<i>Subtotal</i>	<i>155,377</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	155,377
TOTAL SCHEME COST	367,018

Source: Allen Consulting Group based on Water Corporation data

Table A.2

BOYANUP WATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections (estimated)	287
Volume of water delivered (ML) (estimated)	177
Operating cost per connection	\$736.16
Operating cost per kL	\$1.20
Administration costs per connection	\$540.45
Administration costs per kL	\$0.88
Total scheme costs per connection	\$1,276.61
Total scheme costs per kL	\$2.08

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Water Corporation has advised that the Boyanup water scheme is operated by staff from the Bunbury depot.

The Water Corporation estimates that operation of the Boyanup water scheme requires around 0.62 fulltime equivalent staff (FTE).⁴

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Boyanup water scheme requires approximately 0.18 FTEs.

A.3 Bunbury water scheme

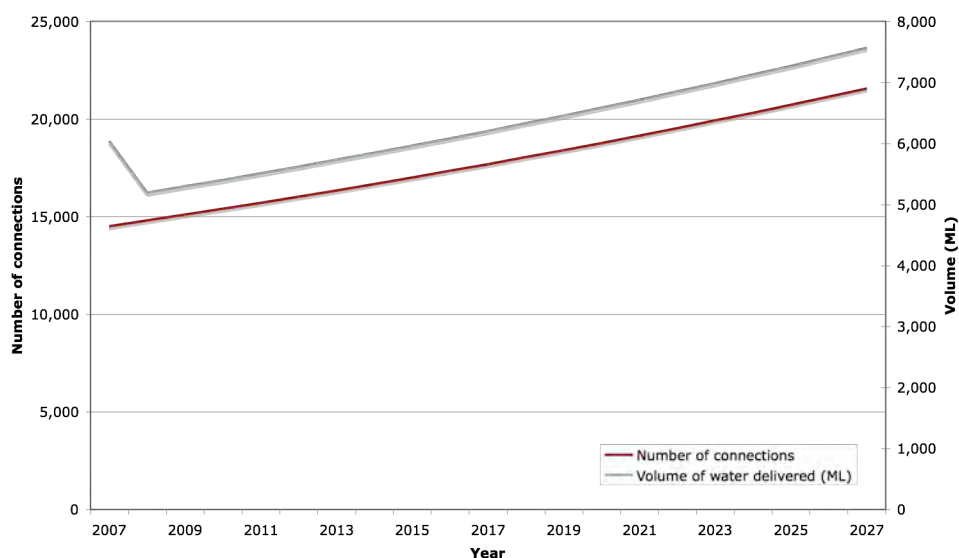
Aqwest (the Bunbury Water Board) operates the Bunbury water scheme, which supplies water to residents of the City of Bunbury. The Bunbury water scheme is bordered by the Dalyellup water scheme operated by the Water Corporation to the south, and the Eaton/Australind water scheme, also operated by the Water Corporation, to the north-east.

As shown in Figure A.3, the Bunbury water scheme had around 14,150 connections in 2006-07, and is expected to deliver around 5,190 ML of water per annum to scheme customers in 2007-08. Aqwest estimates that the number of scheme connections and the volume of water delivered by the scheme will increase by around two per cent per annum. As a result, by 2026-27 scheme connections are expected to stand at around 21,560, while the volume of water delivered by the scheme is expected to reach just over 7,560 ML.

⁴

This allocation is based on time sheet records.

Figure A.3

BUNBURY WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY

Source: Allen Consulting Group based on Water Corporation data

The forecast one-off reduction (of twelve per cent) in the volume of water delivered between 2006-07 and 2007-08 reflects the expected effect of the introduction of watering restrictions for residential users in the City of Bunbury, which limits the watering of gardens to two days a week. Similar restrictions already apply in other areas of the State.

Scheme assets

As shown in Table A.3, the Bunbury water scheme consists of twelve bores, six water treatment plants and ten water storage tanks. The scheme also consists of around 339 kilometres of trunk mains. Information provided by Aqwest indicates that, in aggregate, its bores are operating at around 36 per cent of their design capacity.

Table A.3

BUNBURY WATER SCHEME — SCHEME ASSETS

Plant	Bore	Construction Material	Capacity (kL)	2006-07 Extraction	Utilisation
Hastie	1 (South)	Steel/Type D Cement	5,500	56,811	2.83%
	2 (North)	FRP/Type D Cement	2,900	0	0.00%
Spencer	1 (East)	FRP/Type D Cement	3,350	586,717	47.98%
	2 (West)	FRP/Type D Cement	2,600	646,826	68.16%
Irwin	1 (West)	Steel/Type D Cement	3,840	0	0.00%
	2 (East)	FRP/Type D Cement	3,840	849,736	60.63%
Robertson	3 (Plant)	FRP/Type D low-heat Cement	6,048	1,157,622	52.44%
Skewes	1 (North)	Steel/Type D Cement	2,600	605,967	63.85%
	2 (South)	FRP/Type D Cement	2,400	385,174	43.97%
Tech	1 (West)	Steel/Type A Cement	4,500	61,288	3.73%
	4 (Plant)	FRP/Type D Cement	7,500	1,381,001	50.45%
	5 (new Bussell)	Steel/Type A Cement	6,910	1,035,415	41.05%
Total			51,988	6,766,557	35.66%

Source: Aqwest

Aqwest has provided information on planned future capital investment for four years until 2011-12 only. Total planned capital investment during this period is \$37.8 million. Of this amount, \$8.3 million relates to the purchase of land (including \$0.5 million for future bore sites).

The total amount of expenditure on 'growth' infrastructure included within the residual amount of \$29.5 million was unclear, although such expenditure does appear to be contingent in each case on a business case. Given the level of excess capacity in the Bunbury water scheme at the present, significant investment in additional capacity may not be required in the near future. However, we understand that some of Aqwest's coastal bores may be required to be decommissioned in the not too distant future due to water quality and environmental concerns.

As noted above, Aqwest's Bunbury water scheme borders the Water Corporation's Dalyellup water scheme to the south. Aqwest and the Water Corporation have indicated that the two organisations are discussing the possibility of an interconnection between the two schemes.

The Bunbury water scheme is also bordered by the Eaton/Australind water scheme operated by the Water Corporation to the north. It is understood there have been no discussions regarding a possible interconnection between these two schemes. This may reflect that the Eaton/Australind water scheme is already interconnected with the Water Corporation's water schemes in the towns of Burekup, Roelands and Brunswick Junction.

Scheme operating costs

Table A.4 provides a summary overview of the 2006-07 operating costs of the Bunbury water scheme.

Table A.4

BUNBURY WATER SCHEME — ANNUAL SCHEME OPERATING COSTS

DESCRIPTION	2006-07
<i>Operational expenses</i>	
Materials	\$1,202,989
Electricity	\$311,088
Salaries and Wages	\$583,023
Employee Overheads	\$475,682
Other Expenses	\$355,554
<i>Subtotal</i>	<i>\$2,928,336</i>
Depreciation	\$1,425,923
Total scheme operational expenses	\$4,354,259
Administration expenses	\$1,538,777
Other (administration) expenses	\$722,545
Non-operational depreciation	\$120,999
Total scheme administration expenses	\$2,382,321
Extraordinary item	\$(25,258)
Total scheme expenses	\$6,761,838

Source: Allen Consulting Group based on Aqwest data

Table A.5

BUNBURY WATER SCHEME — AVERAGE SCHEME OPERATING COST

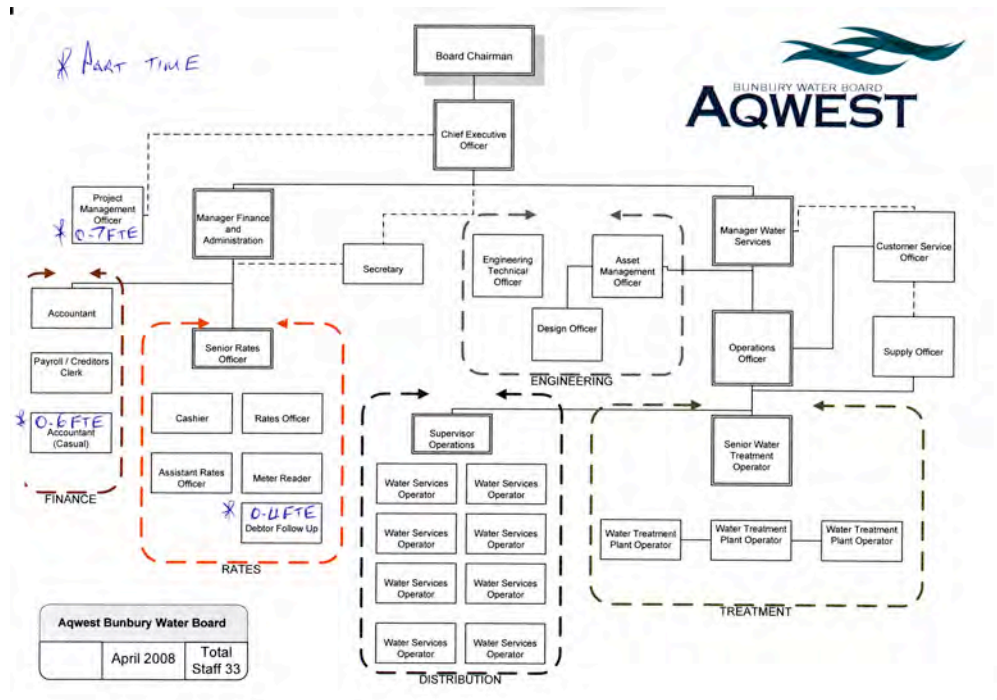
	2006-07
Number of connections	14,510
Volume of water delivered (ML)	6,035
Operating cost per connection	\$300.09
Operating cost per kL	\$0.72
Administration costs per connection	\$164.18
Administration costs per kL	\$0.39
Total scheme costs per connection	\$466.01
Total scheme costs per kL	\$1.12

Source: Allen Consulting Group based on Aqwest data

Scheme personnel

Aqwest is a statutory authority that operates under the *Water Boards Act 1904*. An overview of its organisational structure is provided in Figure A.4. A board of six members governs its operations.

Figure A.4

AQWEST — ORGANISATIONAL STRUCTURE

Source: Aqwest

Aqwest employs around 33 FTEs in its business:

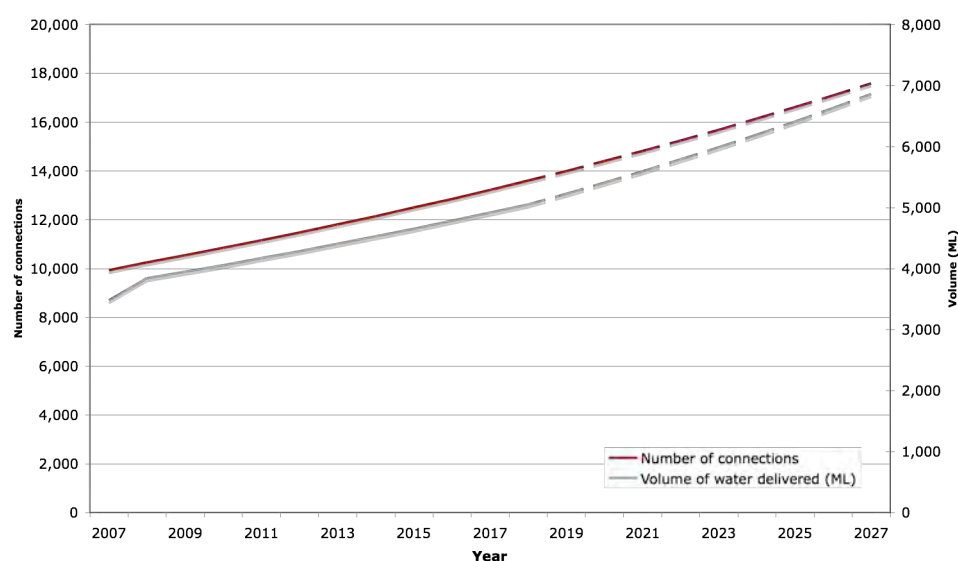
- 13 FTEs in water operations;
- 5.4 FTEs in rates;
- 3.6 FTEs in finance and administration;
- three in engineering; and
- 7.7 FTEs in general administration.

A.4 Busselton water scheme

Busselton Water operates the Busselton water scheme, which serves the town of Busselton and part of the Shire of Busselton. The scheme borders the Dunsborough/Yallingup water scheme, operated by the Water Corporation, to the south-west.

As shown in Figure A.5, the Busselton water scheme had around 10,250 connections in 2006-07, and is expected to deliver around 3,944 ML of water per annum to scheme customers in 2007-08. Busselton Water estimates that by 2017-18 the number of scheme connections will increase to around 13,594, while the volume of water delivered by the scheme will reach just over 5,048 ML.

Figure A.5

BUSSELTON WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY

Source: Allen Consulting Group based on Busselton Water data

The projections shown in Figure A.5 for the period from 2018-19 to 2027-28 were generated by the Allen Consulting Group using the compound annual rate of increase in the number of connections and volume of water between 2006-07 and 2017-18. Using this approach, the Allen Consulting Group estimates that the number of connections in the Busselton water scheme will increase to around 17,500 and that the volume of water delivered will increase to around 6,800 ML.

Scheme assets

The Busselton water scheme currently consists of eight bores, four water treatment plants and five water storage tanks (refer Table A.6 and Table A.7). Information provided by Busselton Water indicates that the bores and the water treatment plant are respectively operating at 17 per cent and 11 per cent of their design capacity. The scheme also comprises of 269 kilometres of mains pipelines.

Table A.6

BUSSELTON WATER — CAPACITY AND UTILISATION OF BORES

Bore Numbers	Location	Capacity (kL/day)	YTD Draw Totals (July - March)	Average Daily Draw	Utilisation
Bore 12	Plant 3	5,200	15,189	55	1.1%
Bore 14	Plant 2	9,000	721,176	2,632	29.2%
Bore 15	Plant 5	12,000	1,016,700	3,711	30.9%
Bore 16	Plant 3	8,640	415,653	1,517	17.6%
Bore 17	Plant 1	8,000	528,227	1,928	24.1%
Bore 18	Plant 5	8,640	5,647	21	0.2%
Bore 19	Plant 1	8,640	77,656	283	3.3%
Bore 20	Plant 3	8,640	435,478	1,589	18.4%
Total		68,760		11,736	17.1%

Source: Busselton Water

Table A.7

BUSSELTON WATER — CAPACITY AND UTILISATION OF WATER TREATMENT PLANTS

Plant Numbers	Location	Draw Capacity (kL/Day)	Delivery Capacity (kL/day)	Average Daily Draw	Average Daily Delivery	Draw Utilisation	Delivery Utilisation
Plant 1	Kent Street	16,640	20,736	2,211	2,054	13.3%	9.9%
Plant 2	Queen Elizabeth Ave	9,000	27,648	2,632	4,502	29.2%	16.3%
Plant 3	Hobson Street	22,480	27,648	3,162	3,051	14.1%	11.0%
Plant 4	Bussell Highway	-	27,648	-	1,715		6.2%
Plant 5	Queen Elizabeth Ave	20,640	-	3,731	-	18.1%	
Plant 9		-		-			
Total		68,760	103,680	11,736	11,322	17.1%	10.9%

Source: Busselton Water

While there is expected to be a significant increase in the volume of water to be delivered by the scheme over the next twenty years (refer Figure A.11), given the level of excess capacity in the scheme, little or no 'growth' investment appears to be required.

Nevertheless, information provided by Busselton Water indicates that it expects to spend almost \$20 million over the ten-year period to 2016-17 on capital works (excluding developer funded mains). Of this amount:

- around \$4.2 million is for new mains;
- \$11.4 million is for new infrastructure; and

- \$4 million is for asset replacement.

Busselton Water has not provided detailed information on the nature of its planned new infrastructure investments. On the surface, there appears to be an inconsistency between the exiting level of excess capacity in the scheme, and the level of proposed new infrastructure expenditure.

As noted above, the Busselton water scheme adjoins the Dunsborough/Yallingup water scheme operated by Busselton Water. Busselton Water and the Water Corporation have indicated that the two organisations are discussing an interconnection between the two schemes.

Scheme operating costs

Table A.14 provides a summary overview of the operating costs of the Busselton water scheme.

Table A.8

BUSSELTON WATER SCHEME — ANNUAL SCHEME OPERATING COSTS

DESCRIPTION	2006-07
<i>Operational expenses</i>	
Pumping (Electricity)	216,974
Production Plant maintenance	448,109
Mains & Meters maintenance	396,825
Public Works Overhead (incl Workshop/Depot & Stores)	151,117
Meter reading	20,757
Water Sampling & Monitoring	61,101
<i>Subtotal</i>	<i>1,294,883</i>
Depreciation	967,850
<i>Total scheme operational expenses</i>	<i>2,262,733</i>
Administration expenses	978,974
Other (administration) expenses	150,857
Non-operational depreciation	11,356
<i>Total scheme administration expenses</i>	<i>1,141,187</i>
Extraordinary item	-12,138
Total scheme expenses	3,391,782

Source: Allen Consulting Group based on Busselton Water data

Table A.9

BUSSELTON WATER SCHEME — AVERAGE SCHEME OPERATING COST

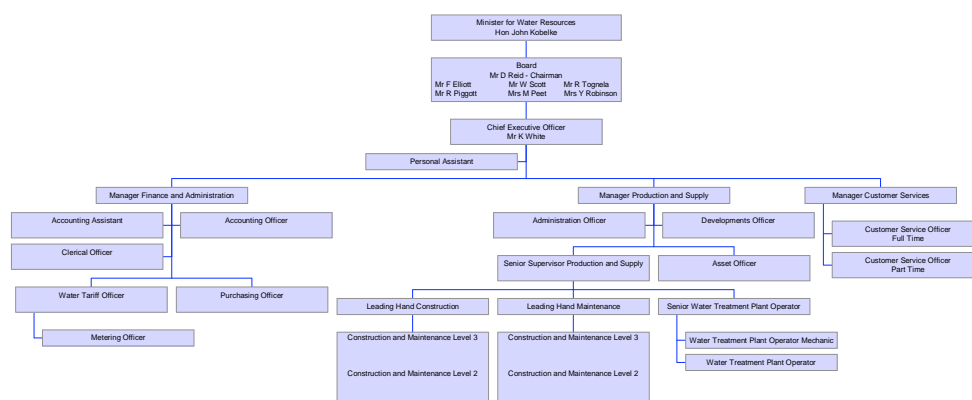
	2007
Number of connections	9,929
Volume of water delivered (ML)	3,473
Operating cost per connection	\$227.89
Operating cost per kL	\$0.65
Administration costs per connection	\$114.93
Administration costs per kL	\$0.33
Total scheme costs per connection	\$341.60
Total scheme costs per kL	\$0.98

Source: Allen Consulting Group based on Busselton Water data

Scheme operating personnel

Like Aqwest, Busselton Water is a statutory authority that operates under the *Water Boards Act 1904*. An overview of its organisational structure is provided in Figure A.6. A board of six members governs its operations.

Figure A.6

BUSSELTON WATER — ORGANISATIONAL STRUCTURE

Source: Busselton Water

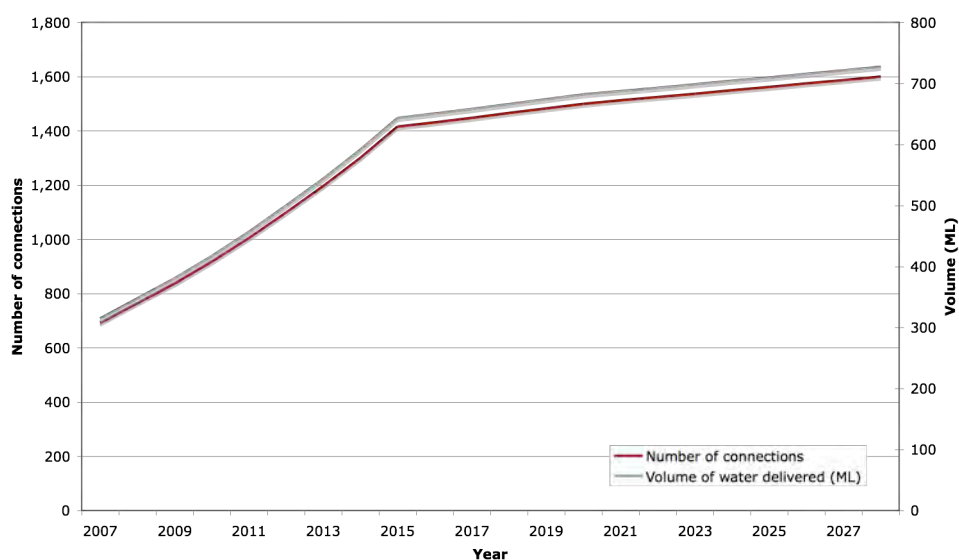
Busselton Water employs around twenty-six staff, of whom about half are operational staff and the other half are administrative staff.

A.5 Capel water scheme

The Capel water scheme, operated by the Water Corporation, serves the town of Capel. Capel is about 27 kilometres south of Bunbury and 28 kilometres north of Busselton.

As shown in Figure A.7, the Capel water scheme currently has 765 connections and is expected to deliver around 348 ML of water per annum to scheme customers in 2007-08. The Water Corporation forecasts that by 2027-28 the number of scheme connections will increase to around 1,600, while the volume of water delivered by the scheme will reach just over 727 ML.

Figure A.7

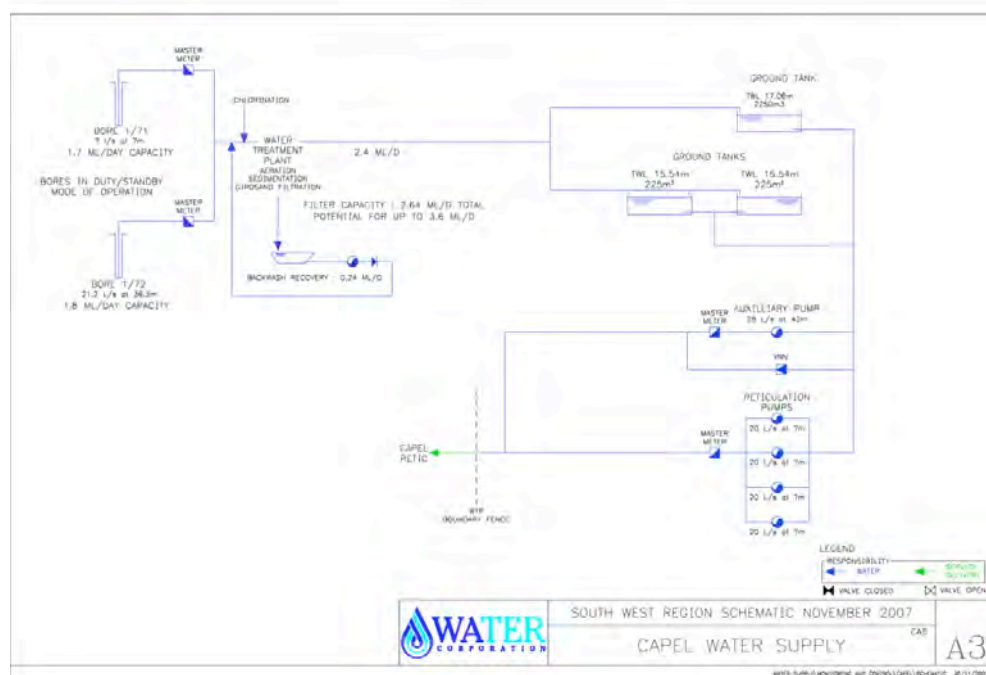
CAPEL WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY

Source: Allen Consulting Group based on Water Corporation data

Scheme assets

Figure A.8 provides an overview of the Capel water scheme assets and engineering structure.

Figure A.8

CAPEL WATER SCHEME — ASSETS AND ENGINEERING

Source: Water Corporation

As shown in Figure A.8, the Capel water scheme consists of two bores, a water treatment plant and three water storage tanks. The Water Corporation has advised that the two bores and the water treatment plant are currently operating at 85 per cent and 66 per cent of their design capacity respectively.

Given the forecast increase in the volume of water to be delivered by the Capel water scheme over the next twenty years (refer Figure A.7), significant investment in additional capacity will be required. At this time, information has been provided by the Water Corporation on planned future capital investment for the four year period to 2010-11 only. During this period, the Water Corporation plans total capital investment expenditure of around \$4.3 million, of which \$2.9 million, or almost 69 per cent, is for 'growth' infrastructure.

The Capel water scheme is geographically isolated from other water schemes in the South West region, and it is not expected that interconnection with other schemes would be considered during the period to 2028.

Scheme operating costs

Table A.10 provides a summary overview of the operating costs of the Capel water scheme.

Table A.10

CAPEL WATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	46,886
Dist. Supp. Surc	33,850
Materials	14,028
Energy	40,276
Chemicals	4,877
Plant and Machinery	5,308
External Service	20,110
Other	5,136
<i>Subtotal</i>	<i>170,470</i>
DEPRECIATION	162,366
TOTAL SCHEME OPERATING COSTS	332,836
Regional (PA)	36,538
Divisional (PA)	59,998
Corporate (PA)	138,276
Other Direct Scheme costs	16,229
<i>Subtotal</i>	<i>251,040</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	251,040
TOTAL SCHEME COST	583,876

Source: Allen Consulting Group based on Water Corporation data

Table A.11

CAPEL WATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections (estimated)	692
Volume of water delivered (ML) (estimated)	315
Operating cost per connection	\$480.78
Operating cost per kL	\$1.06
Administration costs per connection	\$362.62
Administration costs per kL	\$0.80
Total scheme costs per connection	\$843.40
Total scheme costs per kL	\$1.86

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Capel water scheme is operated by staff from the Water Corporation's Bunbury depot. The Water Corporation estimates that operation of the Capel water scheme requires around 0.81 FTEs.⁵

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Capel water scheme requires approximately 0.23 FTEs.

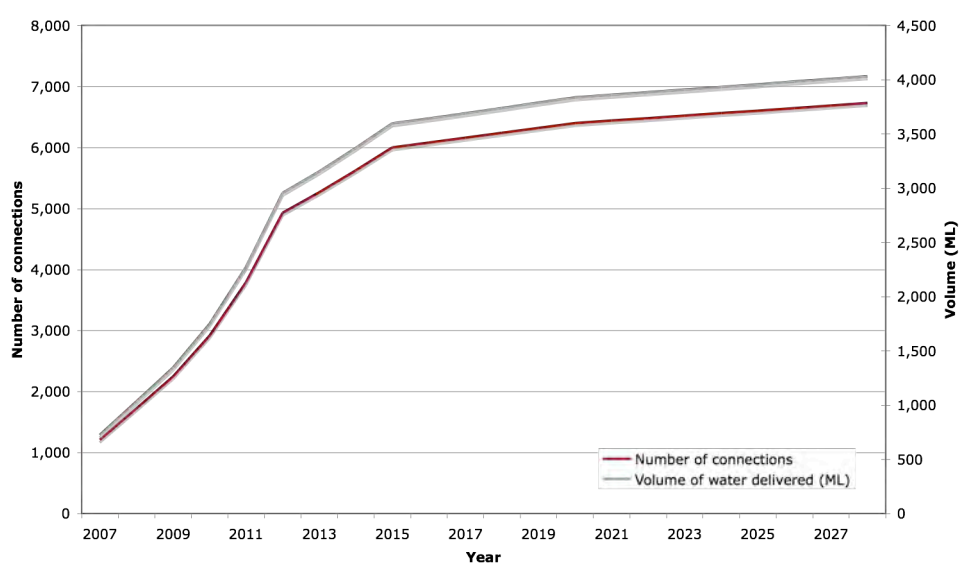
A.6 Dalyellup water scheme

The Dalyellup water scheme serves the Dalyellup subdivision, immediately south of the City of Bunbury. Operation of the Dalyellup water scheme was the subject of a tender process, which was won by the Water Corporation.

As shown in Figure A.9, the Dalyellup water scheme currently has almost 1,730 connections and is expected to deliver around 1,034 ML of water per annum to scheme customers in 2007-08. The Water Corporation forecasts that by 2027-28, the number of scheme connections will increase to around 6,700, while the volume of water delivered by the scheme is expected to reach just over 4,000 ML.

Figure A.9

DALYELLUP WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY



Source: Allen Consulting Group based on Water Corporation data

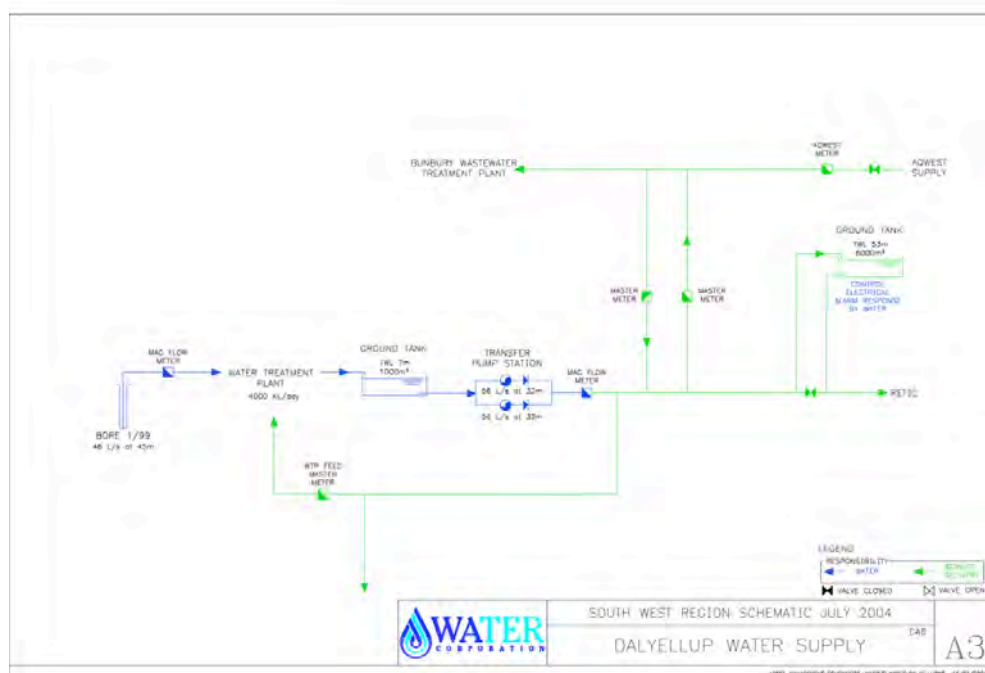
Scheme assets

Figure A.10 provides an overview of the Dalyellup water scheme assets and engineering structure.

⁵

This allocation is based on time sheet records.

Figure A.10

DALYELLUP WATER SCHEME — ASSETS AND ENGINEERING

Source: Water Corporation

Table A.10 suggests that the Dalyellup water scheme consists of a single bore, although the Water Corporation has advised that the scheme currently has two bores, a water treatment plant and two water storage tanks. The Water Corporation has advised that the two bores and the water treatment plant are currently operating at 88 per cent and 64 per cent of their design capacity respectively.

Given the forecast increase in the volume of water to be delivered by the scheme over the next twenty years (refer Figure A.9), significant investment in additional capacity will be required. The Water Corporation has provided information on planned future capital investment for the four years until 2010-11 only. During this period, all \$10.7 million of capital investment expenditure is for 'growth' infrastructure.

The Dalyellup water scheme immediately adjoins the Bunbury water scheme operated by Aqwest. The Water Corporation and Aqwest have indicated that the organisations are discussing an interconnection between the two schemes.

Scheme operating costs

Table A.12 provides a summary overview of the operating costs of the Dalyellup water scheme.

Table A.12

DALYELLUP WATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	93,036
Dist. Supp. Surc	78,259
Materials	39,284
Energy	55,033
Chemicals	106,757
Plant and Machinery	15,841
External Service	28,928
Other	20,424
<i>Subtotal</i>	<i>437,562</i>
DEPRECIATION	434,331
TOTAL SCHEME OPERATING COSTS	871,894
Regional (PA)	88,894
Divisional (PA)	137,435
Corporate (PA)	331,571
Other Direct Scheme costs	35,711
<i>Subtotal</i>	<i>593,610</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	593,610
TOTAL SCHEME COST	1,465,504

Source: Allen Consulting Group based on Water Corporation data

Table A.13

DALYELLUP WATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections (estimated)	1,208
Volume of water delivered (ML) (estimated)	724
Operating cost per connection	\$721.65
Operating cost per kL	\$1.20
Administration costs per connection	\$491.32
Administration costs per kL	\$0.82
Total scheme costs per connection	\$1,212.96
Total scheme costs per kL	\$2.02

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Dalyellup water scheme is operated by staff from the Water Corporation's Bunbury depot. The Water Corporation estimates that operation of the Dalyellup water scheme requires around 1.57 FTEs.⁶

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Dalyellup water scheme requires approximately 0.45 FTEs.

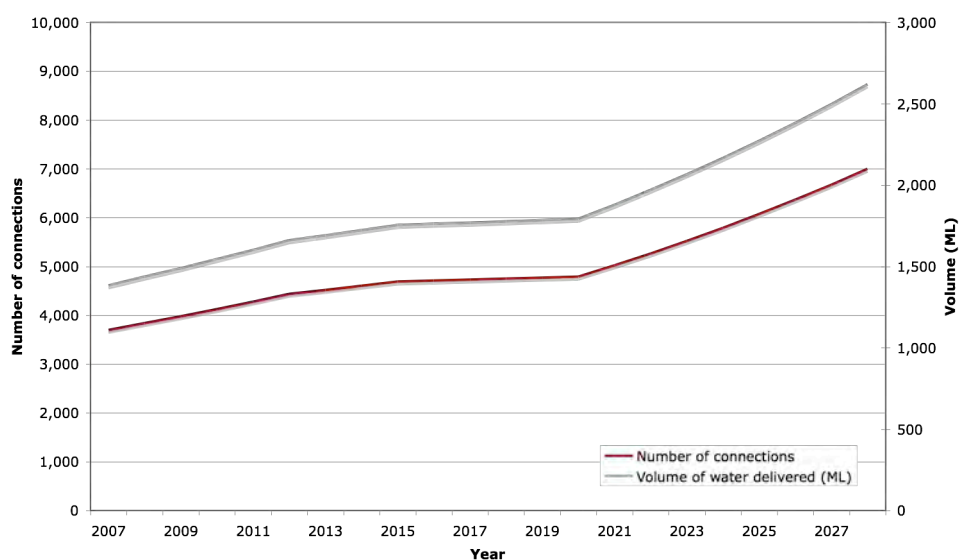
A.7 Dunsborough/Yallingup water scheme

The Water Corporation operates the Dunsborough/Yallingup water scheme, which serves the towns of Dunsborough and Yallingup, part of the Shire of Busselton, as well as the localities of Eagle Bay and Bunker Bay. Dunsborough is approximately 24 kilometres from Busselton.

As shown in Figure A.11, the Dunsborough/Yallingup water scheme currently has almost 3,839 connections and is expected to deliver around 1,436 ML of water per annum to scheme customers in 2007-08. The Water Corporation forecasts that by 2027-28 the number of scheme connections will increase to around 7,000, while the volume of water delivered by the scheme will reach almost 2,620 ML.

Figure A.11

DUNSBOROUGH/YALLINGUP WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY



Source: Allen Consulting Group based on Water Corporation data

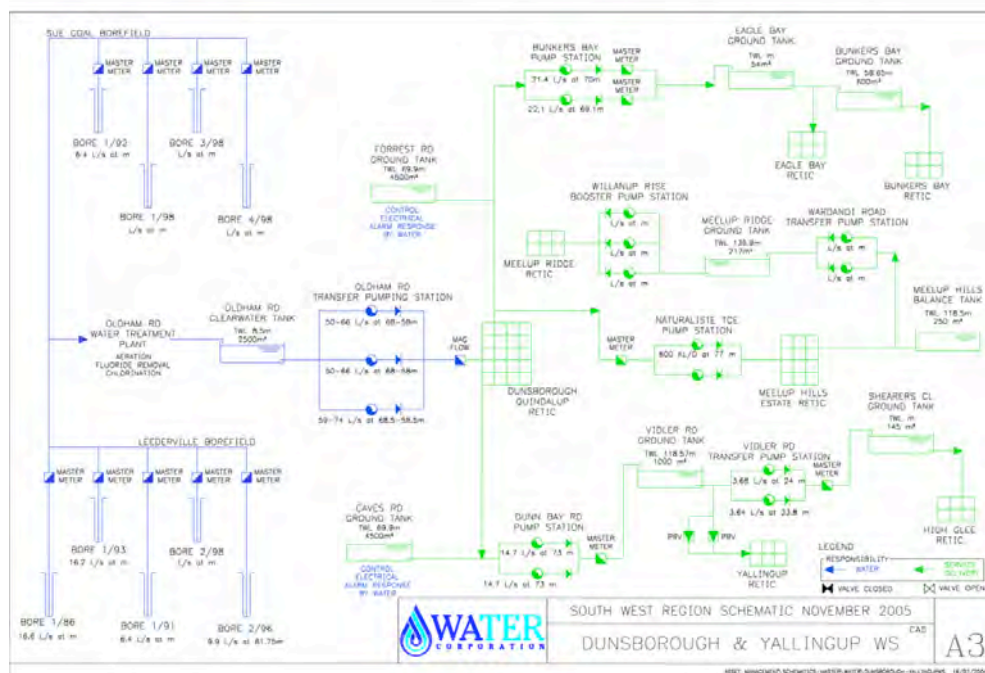
⁶ This allocation is based on time sheet records.

Scheme assets

Figure A.12 provides an overview of the Dunsborough/Yallingup water scheme assets and engineering structure.

Figure A.12

DUNSBOROUGH/YALLINGUP WATER SCHEME — ASSETS AND ENGINEERING



Source: Water Corporation

Figure A.12 indicates that the Dunsborough/Yallingup water scheme consists of nine bores, a water treatment plant and nine water storage tanks. The Water Corporation has advised that the bores and the water treatment plant are currently operating at 75 per cent and 93 per cent of their design capacity respectively.

Given the forecast increase in the volume of water to be delivered by the scheme over the next twenty years (refer Figure A.11), significant investment in additional capacity will be required. The Water Corporation provided information on planned future capital investment for fourteen years until 2020-21 only. During this period, almost all of the proposed capital investment expenditure of around \$64.5 million is for 'growth' infrastructure.

As noted in section A.4, the Dunsborough/Yallingup water scheme borders the Busselton water scheme operated by Busselton Water. Busselton Water and the Water Corporation have indicated that the two organisations are discussing the possibility of an interconnection between the two schemes.

Scheme operating costs

Table A.14 provides a summary overview of the operating costs of the Dunsborough/Yallingup water scheme.

Table A.14

DUNSBOROUGH/YALLINGUP WATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	138,513
Dist. Supp. Surc	118,291
Materials	43,198
Energy	208,673
Chemicals	84,855
Plant and Machinery	3,993
External Service	60,138
Other	36,234
<i>Subtotal</i>	<i>693,894</i>
DEPRECIATION	1,048,794
TOTAL SCHEME OPERATING COSTS	1,742,688
Regional (PA)	157,042
Divisional (PA)	212,787
Corporate (PA)	560,450
Other Direct Scheme costs	62,379
<i>Subtotal</i>	<i>992,658</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	992,658
TOTAL SCHEME COST	2,735,346

Source: Allen Consulting Group based on Water Corporation data

Table A.15

DUNSBOROUGH/YALLINGUP WATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections (estimated)	3,697
Volume of water delivered (ML) (estimated)	1,383
Operating cost per connection	\$471.37
Operating cost per kL	\$1.26
Administration costs per connection	\$268.50
Administration costs per kL	\$0.72
Total scheme costs per connection	\$739.87
Total scheme costs per kL	\$1.98

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Dunsborough/Yallingup water scheme is operated by staff from the Water Corporation's Busselton depot. The Water Corporation estimates that operation of the Dunsborough/Yallingup water scheme requires around 2.46 FTEs.⁷

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Dunsborough/Yallingup water scheme requires approximately 0.71 FTEs.

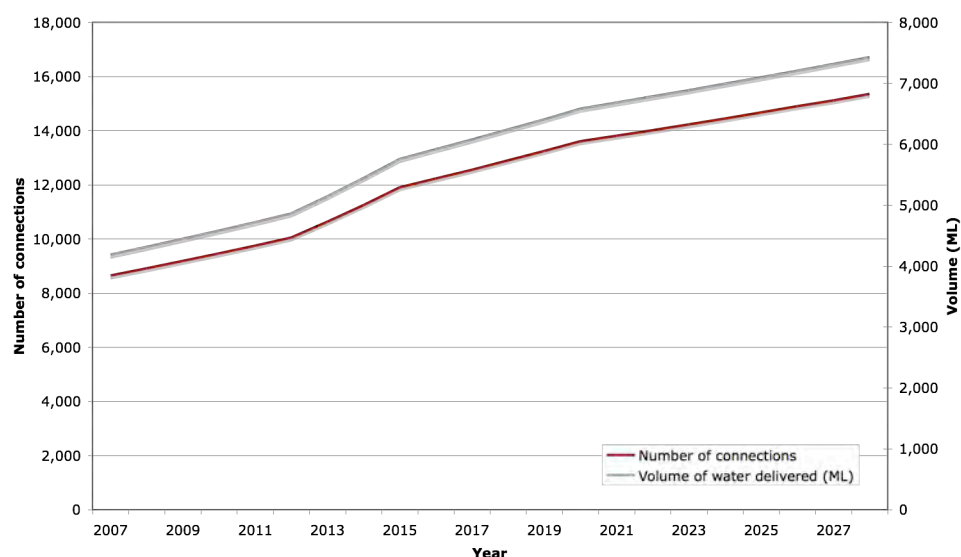
A.8 Eaton/Australind water scheme

The Eaton/Australind water scheme is operated by the Water Corporation and serves the towns of Eaton and Australind, about eight and 12 kilometres north of Bunbury respectively. The scheme borders the northern part of the Bunbury water scheme operated by Aqwest.

As shown in Figure A.13, the Eaton/Australind water scheme currently has almost 8,916 connections and is expected to deliver around 4,313 ML of water per annum to scheme customers in 2007-08. The Water Corporation forecasts that by 2027-28 the number of scheme connections will increase to around 15,350 while the volume of water delivered by the scheme will reach just over 7,425 ML.

Figure A.13

EATON/AUSTRALIND WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY



Source: Allen Consulting Group based on Water Corporation data

⁷

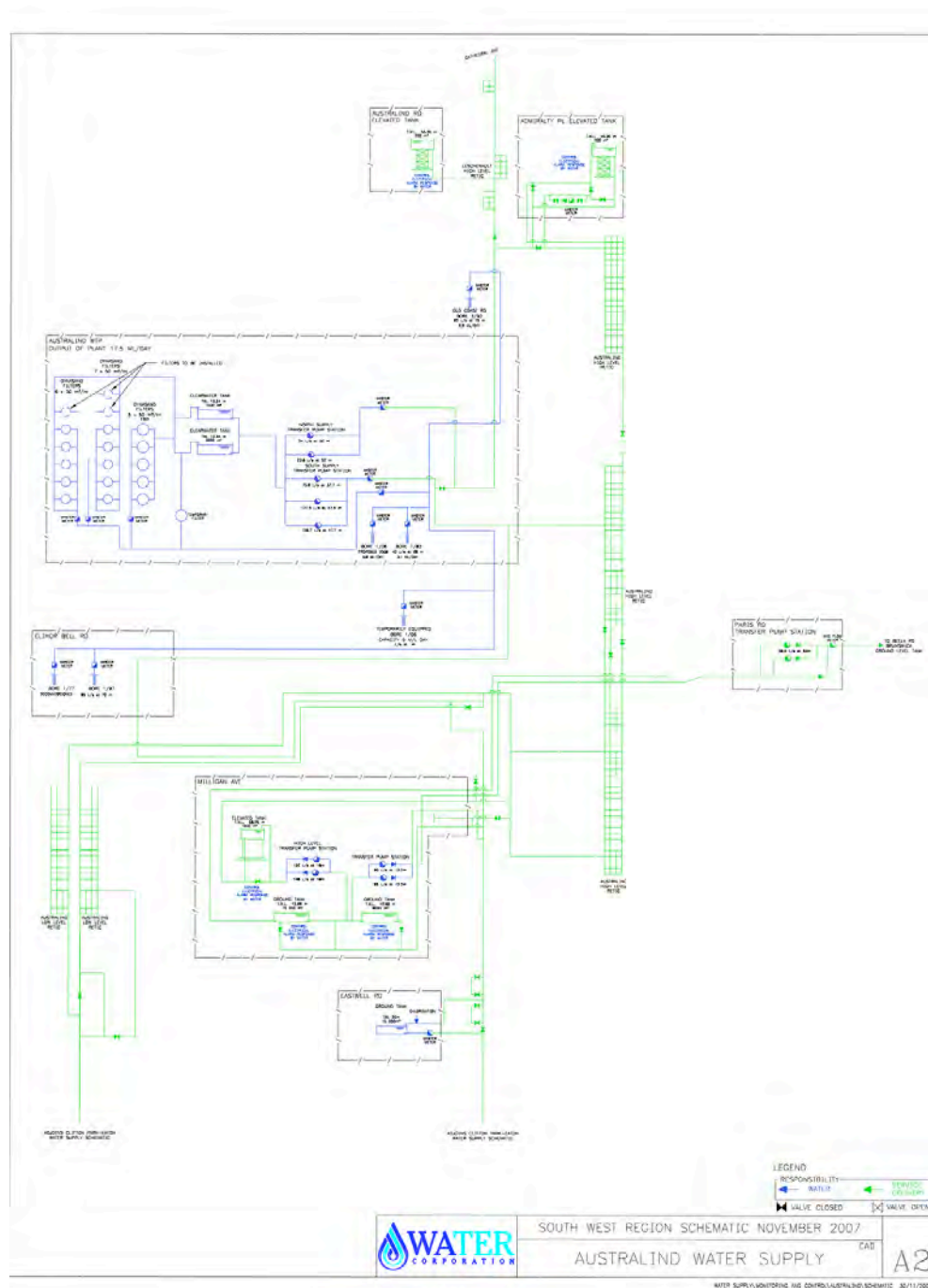
This allocation is based on time sheet records.

Scheme assets

Figure A.14 provides an overview of the Eaton/Australind water scheme assets and engineering structure.

Figure A.14

EATON/AUSTRALIND WATER SCHEME — ASSETS AND ENGINEERING



Source: Water Corporation

As shown in Figure A.14, the Eaton/Australind water scheme consists of seven bores, a water treatment plant and fourteen water storage tanks. The Water Corporation has advised that the bores and the water treatment plant are currently operating at 90 per cent and 95 per cent of their design capacity respectively.

Given the forecast increase in the volume of water to be delivered by the scheme over the next twenty years (refer Figure A.13), significant investment in additional capacity will be required. Information has been provided by the Water Corporation on planned future capital investment for fourteen years until 2020-21. During this period, almost all of the capital investment expenditure of around \$64.5 million is for 'growth' infrastructure.

The Eaton/Australind water scheme is interconnected with the water schemes supplying the towns of Burekup, Roelands, Brunswick Junction, which are to the east of the scheme. The Eaton/Australind water scheme also borders the Bunbury water scheme operated by Aqwest. It is understood that interconnection of the Eaton/Australind water scheme with the Bunbury water scheme has not been considered.

Scheme operating costs

Table A.16 provides a summary overview of the operating costs of the Eaton/Australind water scheme.

Table A.16

EATON/AUSTRALIND WATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	260,451
Dist. Supp. Surc	198,079
Materials	139,458
Energy	352,818
Chemicals	199,649
Plant and Machinery	28,827
External Service	226,583
Other	146,898
<i>Subtotal</i>	<i>1,552,765</i>
DEPRECIATION	1,876,040
TOTAL SCHEME OPERATING COSTS	3,428,805
Regional (PA)	367,544
Divisional (PA)	454,113
Corporate (PA)	1,212,784
Other Direct Scheme costs	143,618
<i>Subtotal</i>	<i>2,178,059</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	2,178,059
TOTAL SCHEME COST	5,606,864

Source: Allen Consulting Group based on Water Corporation data

Table A.17

EATON/AUSTRALIND WATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections (estimated)	8,645
Volume of water delivered (ML) (estimated)	4,182
Operating cost per connection	\$396.62
Operating cost per kL	\$0.82
Administration costs per connection	\$251.94
Administration costs per kL	\$0.52
Total scheme costs per connection	\$648.56
Total scheme costs per kL	\$1.34

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Eaton/Australind water scheme is operated by staff from the Water Corporation's Bunbury depot. The Water Corporation estimates that operation of the Eaton/Australind water scheme requires around 4.32 FTEs.⁸

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Eaton/Australind water scheme requires approximately 1.24 FTEs.

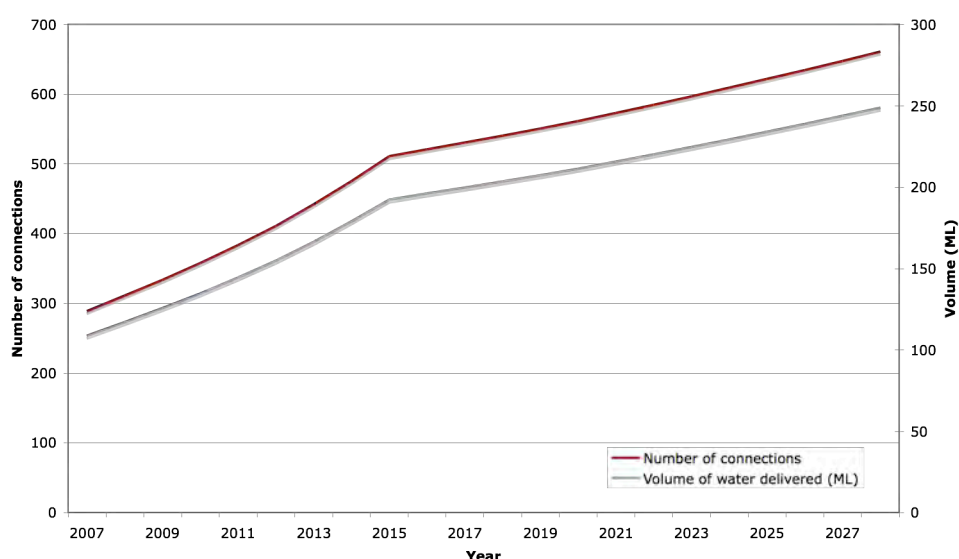
A.9 Peppermint Grove Beach water scheme

The Water Corporation operates the Peppermint Grove Beach water scheme, which serves the township of Peppermint Grove Beach that is about 33 kilometres southwest of Bunbury.

As shown in Figure A.15, the Peppermint Grove Beach water scheme currently has 311 connections and is expected to deliver around 117 ML of water per annum to scheme customers in 2007-08. The Water Corporation forecasts that by 2027-28, the number of scheme connections will increase to around 660, while the volume of water delivered by the scheme will reach just over 249 ML.

Figure A.15

PEPPERMINT GROVE BEACH WATER SCHEME — FORECAST CONNECTIONS AND WATER DELIVERY



Source: Allen Consulting Group based on Water Corporation data

⁸

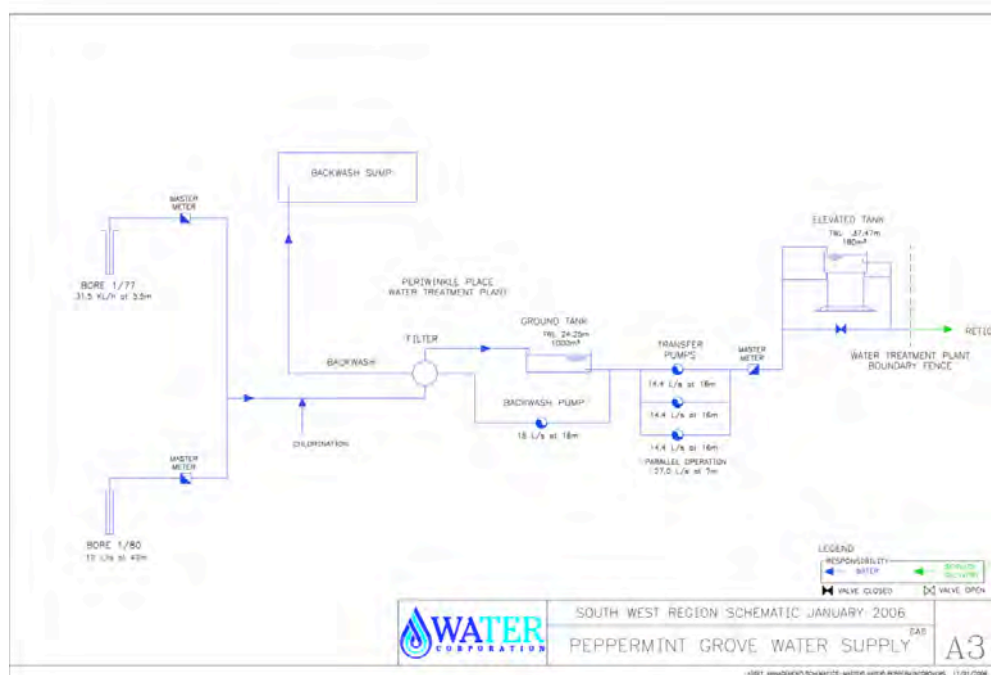
This allocation is based on time sheet records.

Scheme assets

Table A.11 provides an overview of the Peppermint Grove Beach water scheme assets and engineering structure.

Figure A.16

PEPPERMINT GROVE BEACH WATER SCHEME — ASSETS AND ENGINEERING



Source: Water Corporation

As shown in Figure A.16, the Peppermint Grove Beach water scheme consists of two bores, a water treatment plant and two water storage tanks. The Water Corporation has advised that the two bores and the water treatment plant are currently operating at 52 per cent and 75 per cent of their design capacity respectively.

Information has been provided by the Water Corporation on planned future capital investment for the four years until 2010-11 only. During this period, the Water Corporation plans total capital investment expenditure of around \$1.1 million, all of which is 'growth' infrastructure.

The Peppermint Grove Beach water scheme is geographically isolated from other water schemes in the South West region, and it is not expected that interconnection with other schemes would be considered during the period to 2028.

Scheme operating costs

Table A.18 provides a summary overview of the operating costs of the Peppermint Grove Beach water scheme.

Table A.18

PEPPERMINT GROVE BEACH WATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	37,891
Dist. Supp. Surc	29,998
Materials	3,127
Energy	5,960
Chemicals	7,956
Plant and Machinery	554
External Service	13,290
Other	5,983
<i>Subtotal</i>	<i>104,759</i>
DEPRECIATION	88,784
TOTAL SCHEME OPERATING COSTS	193,542
Regional (PA)	20,041
Divisional (PA)	40,508
Corporate (PA)	78,355
Other Direct Scheme costs	9,536
<i>Subtotal</i>	<i>148,440</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	148,440
TOTAL SCHEME COST	341,982

Source: Allen Consulting Group based on Water Corporation data

Table A.19

PEPPERMINT GROVE BEACH WATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections (estimated)	289
Volume of water delivered (ML) (estimated)	109
Operating cost per connection	\$670.74
Operating cost per kL	\$1.78
Administration costs per connection	\$514.43
Administration costs per kL	\$1.37
Total scheme costs per connection	\$1,185.18
Total scheme costs per kL	\$3.15

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Peppermint Grove Beach water scheme is operated by staff from the Water Corporation's Bunbury depot. The Water Corporation estimates that operation of the Peppermint Grove Beach water scheme requires around 0.64 FTEs.⁹

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Peppermint Grove Beach water scheme requires approximately 0.18 FTEs.

⁹ This allocation is based on time sheet records.

Appendix B

Description of South West wastewater schemes

B.1 Introduction

This appendix provides an overview of each of the wastewater schemes in the South West of Western Australia that are included in one or more of the reconfiguration options. These are as follows (in alphabetical order).

- Bunbury/Dalyellup wastewater scheme
- Busselton wastewater scheme
- Capel wastewater scheme
- Dunsborough wastewater scheme
- Eaton/Australind wastewater scheme

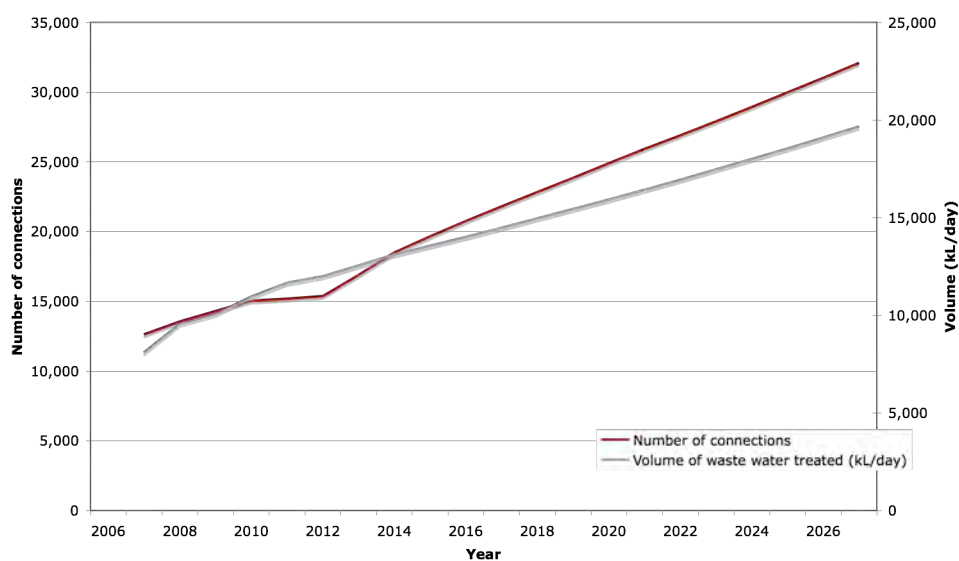
The sections below provide more detail on each of these schemes.

B.2 Bunbury/Dalyellup wastewater scheme

The Bunbury/Dalyellup wastewater scheme, which serves the City of Bunbury and the subdivision of Dalyellup (about 12 kilometres south of Bunbury), is operated by the Water Corporation.

As shown in Figure B.3, the Bunbury/Dalyellup wastewater scheme had almost 13,000 connections and received around 8,077 kL of wastewater per day (equivalent to an annual flow of 2,948 ML) for treatment in 2006-07. The Water Corporation forecasts that by 2027-28 the number of scheme connections will increase to almost 33,500, while the volume of wastewater received for treatment will reach just over 19,100 kL per day.

Figure B.1

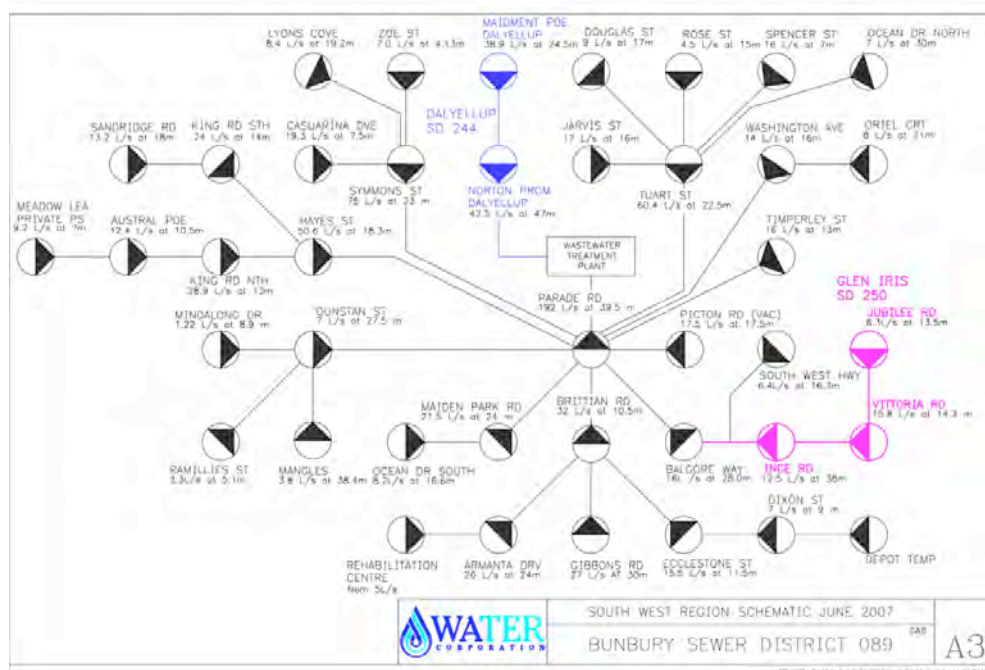
BUNBURY/DALYELLUP WASTEWATER SCHEME — FORECAST CONNECTIONS AND WASTEWATER RECEIVAL

Source: Allen Consulting Group based on Water Corporation data

Scheme assets

Figure B.2 provides an overview of the Bunbury/Dalyellup wastewater scheme assets and engineering.

Figure B.2

BUNBURY/DALYELLUP WASTEWATER SCHEME — ASSETS AND ENGINEERING

Source: Water Corporation

As shown in Table B.2, wastewater received by the Bunbury/Dalyellup wastewater scheme is treated at single wastewater treatment plant.

Most of the wastewater flow goes through an Intermittently Decanted Extended Aeration (IDEA) treatment process, with the remainder going through a biological trickling filter process. The latter is due to be decommissioned in 2009 and replaced by a second IDEA treatment plant that is under design. Treated wastewater disposal is via a 1.8 kilometre ocean outfall. Sludge handling is through 3 aerobic digesters and 2 filter belt presses for off-site disposal to landfill or off-site reuse through composting. There is currently no odour control at the Bunbury wastewater treatment plant.

The Water Corporation has advised that the plant treats around 8,077 kL of wastewater per day, and is currently operating at 88 per cent of its design capacity.

The Water Corporation provided information on its planned future capital investment for Bunbury/Dalyellup wastewater scheme for the period until 2027-28. During this period, the Water Corporation expects to spend more than \$100 million on capital projects. The bulk of this amount, \$95.3 million, is on infrastructure required to meet scheme growth.

Scheme operating costs

Table B.1 provides a summary overview of the operating costs of the Bunbury/Dalyellup wastewater scheme.

Table B.1

BUNBURY/DALYELLUP WASTEWATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	388,995
Dist. Supp. Surc	295,770
Materials	104,887
Energy	244,847
Chemicals	10,536
Plant and Machinery	76,848
External Service	541,542
Other	19,092
<i>Subtotal</i>	<i>1,682,517</i>
DEPRECIATION	2,551,986
TOTAL SCHEME OPERATING COSTS	4,234,503
Regional (PA)	443,323
Divisional (PA)	513,093
Corporate (PA)	1,397,264
Other Direct Scheme costs	307,693
<i>Subtotal</i>	<i>2,661,373</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	2,661,373
TOTAL SCHEME COST	6,895,876

Source: Allen Consulting Group based on Water Corporation data

Table B.2

BUNBURY/DALYELLUP WASTEWATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections	12,615
Volume of wastewater treated (kL/day)	8,077
Operating cost per connection	\$335.67
Operating cost per kL	\$1.44
Administration costs per connection	\$210.97
Operating cost per kL	\$0.90
Total scheme costs per connection	\$546.64
Operating cost per kL	\$2.34

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Bunbury/Dalyellup wastewater scheme is operated by staff from the Water Corporation's Bunbury depot. The Water Corporation estimates that operation of the Bunbury/Dalyellup wastewater scheme requires around 5.92 FTEs.¹⁰

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Bunbury/Dalyellup water scheme requires approximately 2.27 FTEs.

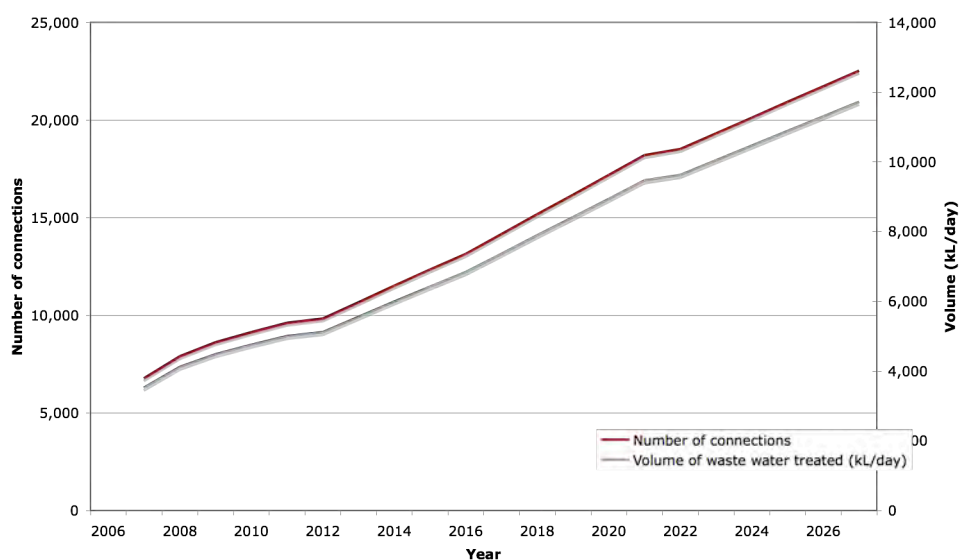
B.3 Busselton wastewater scheme

The Busselton wastewater scheme serves the town of Busselton, which is about 54 kilometres south-west of Bunbury. The Water Corporation operates the scheme.

As shown in Figure B.3, the Busselton wastewater scheme currently had 6,766 connections and receives almost 3,518 kL of wastewater per day for treatment (equivalent to just over 1,284 ML for the year) in 2006-07. The Water Corporation forecasts that by 2027-28 the number of scheme connections will increase to around 23,500, while the volume of wastewater received for treatment will reach just over 13,600 kL per day.

Figure B.3

BUSSELTON WASTEWATER SCHEME — FORECAST CONNECTIONS AND WASTEWATER RECEIVAL



Source: Allen Consulting Group based on Water Corporation data

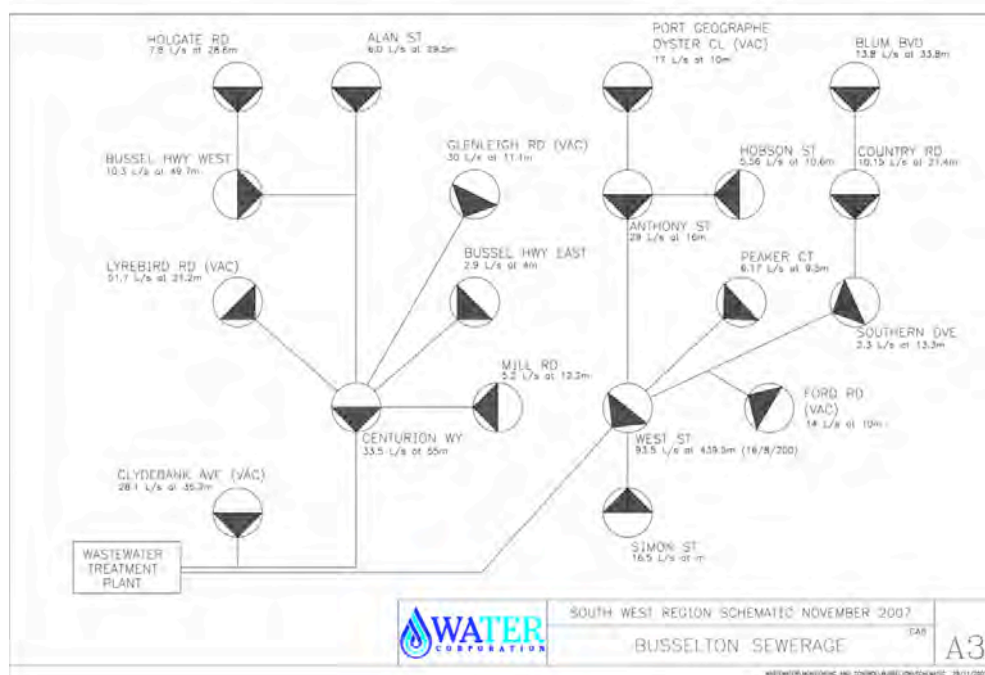
¹⁰ This allocation is based on time sheet records.

Scheme assets

Figure B.4 provides an overview of the Busselton wastewater scheme infrastructure and engineering.

Figure B.4

BUSSELTON WASTEWATER SCHEME — ASSETS AND ENGINEERING



Source: Water Corporation

As shown in Figure B.4, wastewater received by the Busselton wastewater scheme is treated at a single treatment plant. The plant uses an activated sludge Sequencing Batch Reactor to treat wastewater to a tertiary standard, followed by high rate filtration and UV disinfection, and subsequent disposal to wetland/rural drainage or reuse to golf course.

Data provided by the Water Corporation indicates that the treatment plant, which was constructed in 1999, has a design capacity of 2,400 kL per day (around 12,000 people), but is currently receiving 3,518 kL of wastewater. That is, the plant is operating at almost 150 per cent of its design capacity.

Information has been provided by the Water Corporation on planned future capital investment for the period until 2027-28. During this period, the Water Corporation plans total capital investment expenditure of around \$89 million, the bulk of which (\$72.4 million) is to meet scheme growth.

Scheme operating costs

Table B.7 provides a summary overview of the operating costs of the Busselton wastewater scheme.

Table B.3

BUSSELTON WASTEWATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	213,532
Dist. Supp. Surc	163,982
Materials	98,970
Energy	166,028
Chemicals	45,305
Plant and Machinery	30,647
External Service	375,298
Other	41,544
<i>Subtotal</i>	<i>1,135,307</i>
DEPRECIATION	1,293,038
TOTAL SCHEME OPERATING COSTS	2,428,344
Regional (PA)	268,394
Divisional (PA)	338,914
Corporate (PA)	890,368
Other Direct Scheme costs	43,952
<i>Subtotal</i>	<i>1,541,628</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	1,541,628
TOTAL SCHEME COST	3,969,973

Source: Allen Consulting Group based on Water Corporation data

Table B.4

BUSSELTON WASTEWATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections	6,766
Volume of wastewater treated (kL/day)	3,518
Operating cost per connection	\$358.90
Operating cost per kL	\$1.89
Administration costs per connection	\$227.85
Operating cost per kL	\$1.20
Total scheme costs per connection	\$586.75
Operating cost per kL	\$3.09

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Busselton wastewater scheme is operated by staff from the Water Corporation's Busselton depot. The Water Corporation estimates that operation of the Busselton wastewater scheme requires around 3.5 FTEs.¹¹

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Busselton water scheme requires approximately 1.34 FTEs.

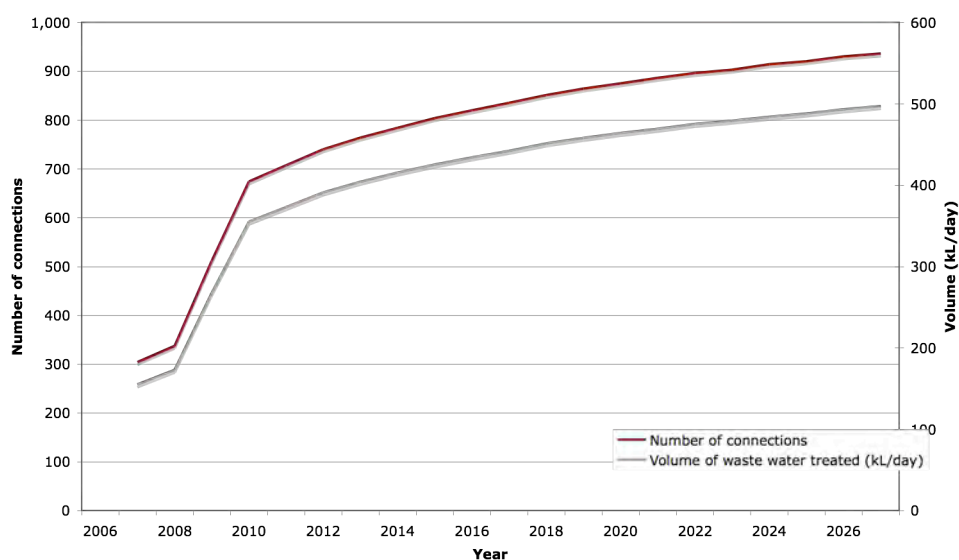
B.4 Capel wastewater scheme

The Capel wastewater scheme, operated by the Water Corporation, serves the town of Capel. Capel is about 27 kilometres south of Bunbury and 28 kilometres north of Busselton.

As shown in Figure B.5, the Capel wastewater scheme had 304 connections and receives almost 155 kL of wastewater per day (equivalent to almost 57 ML for the year) for treatment in 2006-07. The Water Corporation forecasts that by 2027-28 the number of scheme connections will increase to close to 800, while the volume of wastewater received for treatment will reach just over 400 kL per day.

Figure B.5

CAPEL WASTEWATER SCHEME — FORECAST CONNECTIONS AND WASTEWATER RECEIVAL



Source: Allen Consulting Group based on Water Corporation data

¹¹ This allocation is based on time sheet records.

Scheme assets

Wastewater received by the Capel wastewater scheme is treated at single treatment plant, which uses wastewater stabilisation ponds. Liquid waste is then disposed through two infiltration ponds.

The treatment plant, which was constructed in 1990, was designed to receive 130 kL of wastewater per day (around 650 people). However, it is currently receiving 155 kL. That is, the plant is operating at almost 120 per cent of its design capacity.

Information has been provided by the Water Corporation on planned future capital investment for the period until 2027-28. During this period, the Water Corporation plans total capital investment expenditure of around \$26.9 million, all of which is for 'growth' infrastructure.

Scheme operating costs

Table B.5 provides a summary overview of the operating costs of the Capel wastewater scheme.

Table B.5

CAPEL WASTEWATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	8,835
Dist. Supp. Surc	8,220
Materials	420
Energy	4,375
Chemicals	278
Plant and Machinery	1,474
External Service	13,527
Other	0
<i>Subtotal</i>	<i>37,129</i>
DEPRECIATION	108,534
TOTAL SCHEME OPERATING COSTS	145,663
Regional (PA)	10,013
Divisional (PA)	21,021
Corporate (PA)	29,891
Other Direct Scheme costs	1,936
<i>Subtotal</i>	<i>62,860</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	62,860
TOTAL SCHEME COST	208,523

Source: Allen Consulting Group based on Water Corporation data

Table B.6

CAPEL WASTEWATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections	304
Volume of wastewater treated (kL/day)	155
Operating cost per connection	\$479.15
Operating cost per kL	\$2.57
Administration costs per connection	\$206.78
Operating cost per kL	\$1.11
Total scheme costs per connection	\$685.93
Operating cost per kL	\$3.69

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Capel wastewater scheme is operated by staff from the Water Corporation's Bunbury depot. The Water Corporation estimates that operation of the Capel wastewater scheme requires around 0.18 FTEs.¹²

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Capel water scheme requires approximately 0.07 FTEs.

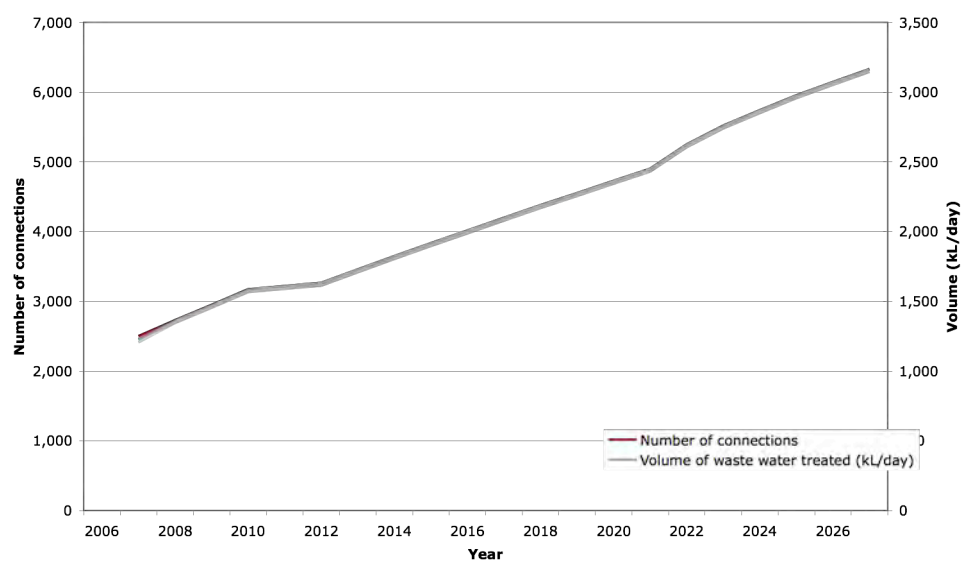
B.5 Dunsborough wastewater scheme

The Water Corporation operates the Dunsborough wastewater scheme, which serves the towns of Dunsborough and Yallingup, part of the Shire of Busselton, as well as the localities of Eagle Bay and Bunker Bay. Dunsborough is approximately 24 kilometres from Busselton.

As shown in Figure B.6, the Dunsborough wastewater scheme had 2,502 connections and received 1,226 kL of wastewater per day (equivalent to 447 ML for the year) for treatment in 2006-07. The Water Corporation forecasts that by 2027-28 the number of scheme connections will increase to around 6,500, while the volume of wastewater received for treatment will reach just over 3,900 kL per day.

¹² This allocation is based on time sheet records.

Figure B.6

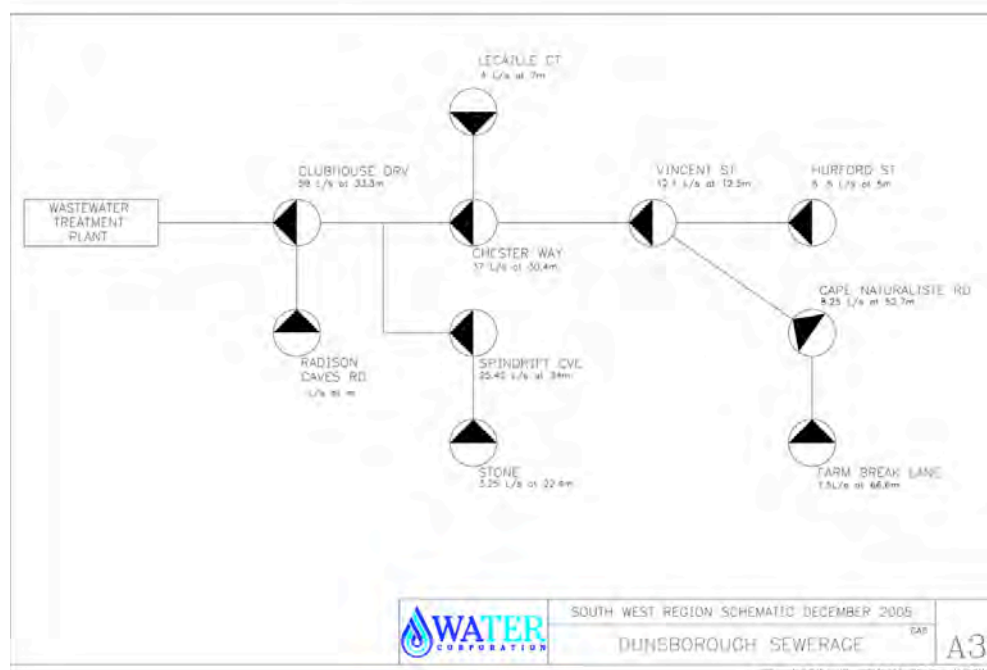
DUNSBOROUGH WASTEWATER SCHEME — FORECAST CONNECTIONS AND WASTEWATER RECEIVAL

Source: Allen Consulting Group based on Water Corporation data

Scheme assets

Table B.8 provides an overview of the Dunsborough wastewater scheme assets and engineering.

Figure B.7

DUNSBOROUGH WASTEWATER SCHEME — ASSETS AND ENGINEERING

Source: Water Corporation

As shown in Table B.8, wastewater received by the Dunsborough wastewater scheme is treated at single treatment plant. The plant uses an Intermittently Decanted Extended Aeration process to treat wastewater to a tertiary standard. Treated waste is dried in lined sludge beds, with liquid waste transferred to an irrigation dam for discharge or irrigation of a Blue gum plantation.

Data provided by the Water Corporation indicates that the treatment plant, which was constructed in 2000, has a design capacity of 2,000 kL per day and is currently receiving 1,226 kL per day. That is, the plant is operating at just over 60 per cent of its design capacity.

Information has been provided by the Water Corporation on planned future capital investment for the period until 2027-28. During this period, the Water Corporation plans total capital investment expenditure of around \$40.7 million, the bulk of which (\$39.4 million) is to meet scheme growth.

Scheme operating costs

Table B.7 provides a summary over view of the operating costs of the Dunsborough wastewater scheme.

Table B.7

DUNSBOROUGH WASTEWATER SCHEME — ANNUAL SCHEME OPERATING COSTS

	2006-07
Labour	93,951
Dist. Supp. Surc	63,147
Materials	24,197
Energy	74,655
Chemicals	32,630
Plant and Machinery	28,807
External Service	80,997
Other	63,733
<i>Subtotal</i>	<i>462,117</i>
DEPRECIATION	554,976
TOTAL SCHEME OPERATING COSTS	1,017,093
Regional (PA)	99,319
Divisional (PA)	140,106
Corporate (PA)	341,837
Other Direct Scheme costs	17,034
<i>Subtotal</i>	<i>598,295</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	598,295
TOTAL SCHEME COST	1,615,388

Source: Allen Consulting Group based on Water Corporation data

Table B.8

DUNSBOROUGH WASTEWATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections	2,502
Volume of wastewater treated (kL/day)	1,226
Operating cost per connection	\$406.51
Operating cost per kL	\$2.27
Administration costs per connection	\$239.13
Operating cost per kL	\$1.34
Total scheme costs per connection	\$645.64
Operating cost per kL	\$3.61

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Dunsborough wastewater scheme is operated by staff from the Water Corporation's Busselton depot. The Water Corporation estimates that operation of the Dunsborough wastewater scheme requires around 1.35 FTEs.¹³

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Dunsborough water scheme requires approximately 0.52 FTEs.

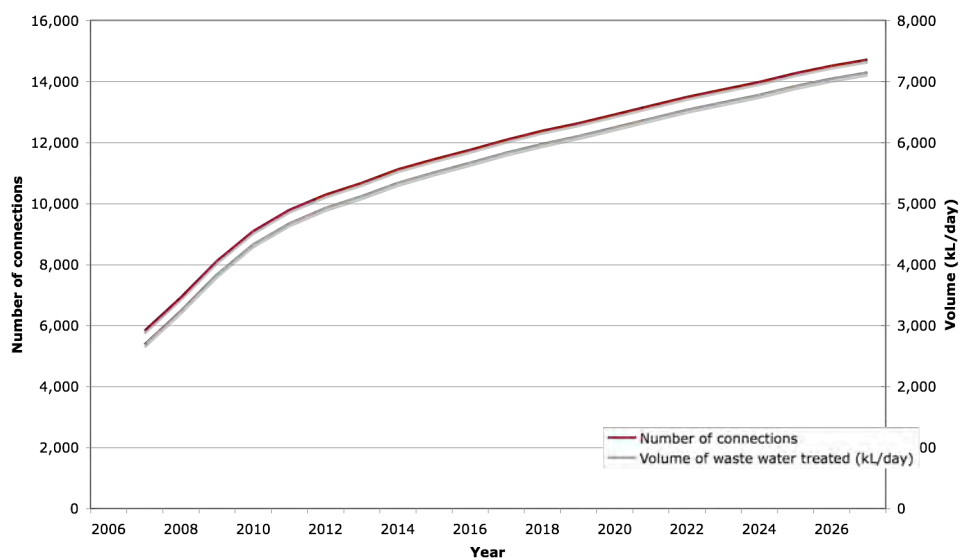
B.6 Eaton/Australind wastewater scheme

The Eaton/Australind wastewater scheme is operated by the Water Corporation and serves the towns of Eaton and Australind, about eight and 12 kilometres north of Bunbury respectively

As shown in Figure A.15, the Eaton/Australind wastewater scheme had 5,824 connections and received around 2,688 kL of wastewater per day (equivalent to 981 ML) for treatment in 2006-07. The Water Corporation forecasts that by 2027 the number of scheme connections will increase to around 14,558, while the volume of wastewater received for treatment will reach just over 7,000 kL per day.

¹³ This allocation is based on time sheet records.

Figure B.8

EATON/AUSTRALIND WASTEWATER SCHEME — FORECAST CONNECTIONS AND WASTEWATER RECEIVAL

Source: Allen Consulting Group based on Water Corporation data

Scheme assets

Figure B.9 provides an overview of the Eaton/Australind wastewater scheme assets and engineering.

EATON AND AUSTRALIND WASTEWATER SCHEME — ASSETS AND ENGINEERING



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Data provided by the Water Corporation indicates that the treatment plant, which was constructed in 2003, has a design capacity of 3,600 kL per day and is currently receiving 2,688 kL per day. That is, the plant is operating at almost 75 per cent of its design capacity.

The Water Corporation provided information on planned future capital investment for the Eaton/Australind wastewater scheme for the period until 2027-28. During this period, the Water Corporation plans total capital investment expenditure of around \$54.3 million, almost all of which is to meet scheme growth.

Scheme operating costs

Table B.9 provides a summary overview of the operating costs of the Eaton/Australind wastewater scheme.

Table B.9

EATON/AUSTRALIND WASTEWATER SCHEME — ANNUAL SCHEME OPERATING COSTS	
	2006-07
Labour	83,919
Dist. Supp. Surc	65,697
Materials	54,164
Energy	78,880
Chemicals	0
Plant and Machinery	28,120
External Service	60,527
Other	1,302
<i>Subtotal</i>	<i>372,610</i>
DEPRECIATION	1,152,526
TOTAL SCHEME OPERATING COSTS	1,525,136
Regional (PA)	130,295
Divisional (PA)	130,968
Corporate (PA)	329,438
Other Direct Scheme costs	242,824
<i>Subtotal</i>	<i>833,525</i>
DEPRECIATION	
TOTAL SCHEME ADMINISTRATION COSTS	833,525
TOTAL SCHEME COST	2,358,661

Source: Allen Consulting Group based on Water Corporation data

Table B.10

EATON/AUSTRALIND WASTEWATER SCHEME — AVERAGE SCHEME OPERATING COST

	2006-07
Number of connections	5,824
Volume of wastewater treated (kL/day)	2,688
Operating cost per connection	\$261.87
Operating cost per kL	\$1.55
Administration costs per connection	\$143.12
Operating cost per kL	\$0.85
Total scheme costs per connection	\$404.99
Operating cost per kL	\$2.40

Source: Allen Consulting Group based on Water Corporation data

Scheme operating personnel

The Eaton/Australind wastewater scheme is operated by staff from the Water Corporation's Bunbury depot. The Water Corporation estimates that operation of the Eaton/Australind wastewater scheme requires around 3.7 FTEs.¹⁴

In addition, the Water Corporation has allocated general supervisory and support staff (operations only, excluding any customer facing services) in proportion to direct scheme costs. On this basis, the Water Corporation estimates that supervision and support of the Eaton/Australind water scheme requires approximately 1.42 FTEs.

¹⁴ This allocation is based on time sheet records.