

Water Supply, Parks and Forests Division Capital Works Programme 2006-2007: Half Year Review

1. Purpose

The purpose of this attachment is to present a summary of the financial position of the projects making up the 2006/7 Capital Works Programme as at 31 December 2006. It is in two parts: Part A is wholesale water supply, Part B is Parks.

2. Part A: Wholesale water supply

2.1 Summary of Water Supply Capital Works Programme outcome

The forecast expenditure for 2006/7 Annual Plan water supply projects is **\$4,745,000** against a budget of **\$6,230,000**, a difference of approximately **\$1,485,000**.

The forecast expenditure includes an additional project that is recommended for inclusion in the programme.

The main reasons for spending less than the budget are:

1. Deferring the replacement of the Kaitoke to Karori main on Silverstream Bridge
2. Equipment replacement budgets for the water treatment plants are forecast to be significantly under spent.

2.2 Under spending expected in 2006/07

2.2.1 Summary

Under spending totalling approximately \$2,356,000 is forecast within the 2006/07 Capital Works Programme for a variety of reasons, as described below.

2.2.2 Reduced scope

The scope of a number of projects has been reduced, resulting in a saving of approximately \$820,000.

The majority of this saving is associated with budgets allocated to equipment replacement at the treatment plants, which were set at 2% of the equipment value. However, the need to replace equipment this year has been less than anticipated.

In addition, more detailed analysis has shown that distribution upgrades required to facilitate higher flow rates in the future will be less costly than anticipated.

Projects where scope has been reduced

	\$	<i>Total \$</i>
Te Marua WTP Replace Equipment	150,000	
Waterloo WTP Replace Equipment	20,000	
Waterloo Lime System Upgrade	65,000	
Wainui WTP Replace Equipment	65,000	
Gear Island WTP Replace Equipment	20,000	
WTP Unplanned Minor Replacement/Refurbm'nt	200,000	
Telemetry System Renewal	30,000	
Control System Upgrade	19,607	
Emergency Connections	50,000	
Hazard Protection	828	
Upgrade Distribution System for future demand	200,000	
		<hr/> \$820,435 <hr/>

2.2.3 Deferral/Cancellation

Replacement of Kaitoke to Karori main on Silverstream Bridge

The bulk of the under spending is the result of deferring the replacement of the Kaitoke to Karori water main on the Silverstream Bridge.

This bridge and the water main on it have been identified for many years as utility lifelines that are vulnerable to damage in an earthquake. To address this concern, seismic strengthening of the bridge has recently been completed by Upper Hutt City in a way that did not have any impact on the pipe or its location. GWRC made a contribution of \$60,000 towards the cost of this work. Very minor work required to upgrade the fixings securing the pipeline to the bridge to bring them up to an appropriate level of seismic resistance will be undertaken before 30 June 07.

The underside of the pipeline is slightly below the soffit of the bridge, and it was considered that this increases flood levels upstream of the bridge. However recently completed detailed flood level modelling has shown that this increase is very small and the benefits achieved by revising the pipeline are negligible. Consequently, deferral of the pipe replacement is recommended.

A detailed condition assessment of the pipe is being conducted to provide information on its remaining life and an indication of when it should be replaced. This approach has been discussed with senior officers at UHCC and they are comfortable with it.

Strengthening of the Stuart Macaskill Lake towers

Another project that it is proposed to cancel is the strengthening of the Stuart Macaskill lake towers. An initial structural analysis indicated that they did not have sufficient strength to resist modern code earthquake forces. However testing of concrete core samples from the towers showed the concrete is considerably stronger than the design allowed for, and a peer review has confirmed that strengthening is not required.

Te Marua Intake

The budget contains \$100,000 to begin detailed investigation and design of an intake and pumping station on the Hutt River at Te Marua. This project was part of the original Te Marua development concept. Recently completed modelling of the proposal using the SYM model has shown that it would have limited benefits and these would be very dependent on the (as yet unknown) consent conditions for residual river flow. Taking more water at Kaitoke would provide about the same level of benefit and is far cheaper. Consequently investigation of the intake has been deferred. Whether it proceeds at all will depend on whether a consent can be obtained to extract more water at Kaitoke, and the outcome of new source studies currently being conducted.

Projects deferred or cancelled

	\$
Strengthen Lake Towers (Investigation/Design)	87,000
Hutt River Intake at Te Marua	100,000
Relocate Kaitoke Main on Silverstream Bridge	700,000
	<u>\$887,000</u>

Projects delayed to be re-budgeted

	\$
Te Marua Replace Distributed Control System	230,000
Wellington CBD Reservoir	90,000
System Optimiser stage 2	180,000
	<u>\$500,000</u>

2.2.4 Projects delayed

For a variety of reasons, some projects have been delayed and part of the funding for these projects, totalling \$500,000, will be carried forward to next financial year. These projects include:

- replacement of the computerised control system at Te Marua WTP
- investigation work on the proposed Wellington CBD reservoir in Prince of Wales Park
- installation of stage 2 of the “Derceto” system control optimising software

2.2.5 Direct cost savings

Direct cost savings on a number of projects are forecast to result in savings of \$149,000. Refer to the table below for the list of these projects.

Projects where cost savings are forecast

	\$
Te Marua Roothing Reseals	4,000
Wainui/Orongorongo Catchment Fence	28,000
Wainui Lower Dam Improvements	50,000
Replacement Material for Silverstream Bridge	30,000
Upgrade SYM Model	37,000
	<hr/>
	\$149,000

2.3 Projects where additional costs are expected or have been incurred

2.3.1 Summary

The forecast additional cost total is \$805,000. There are a variety of reasons for the expected additional costs as set out below.

2.3.2 Sentinel Wells on Petone foreshore

The Waiwhetu aquifer under the Lower Hutt Valley is vulnerable to infiltration of sea water if it is drawn down too low. Saline intrusion could cause serious, long term damage to the resource. Consequently the level in the aquifer is monitored carefully and continuously by GWW and the Environmental Monitoring and Investigations Department. However, this monitoring is currently limited to one location at McEwan Park, and to the shallower of the two aquifers that exist.

The Sentinel Wells project comprises a second deeper well at McEwan Park, and a pair of wells on the foreshore opposite Sydney Street. The project is very important to the protection of water quality in the aquifer, and the long term sustainability of the region's water supply.

The budget of \$100,000 was based on a preliminary estimate prepared by the Environmental Monitoring and Investigations Department who supervised the drilling of an exploratory well near Ewen Bridge approximately three years ago. However, full investigation of the proposal and discussions with well drilling companies indicates that the cost of the work is likely to be close to \$250,000. Consequently there is a \$150,000 funding shortfall.

The work is considered important and worthy of the additional expense. Tenders are to be called in February, but a tender will not be accepted unless the additional funding is approved.

2.3.3 Relocation of the Kaitoke to Karori main at Haywards

Site conditions have resulted in a significant increase in costs for Contract No. 1241, Relocation of the Kaitoke to Karori main at Haywards. The pipeline was moved out from the toe of the hillside alongside State Highway 2 and rerouted through Transpower land because of the unstable nature of the ground on part of the originally proposed route. These issues were reported to the Utility

Service Committee in Report No. 06.17 in February 2006 and again in Report PE-06.319 in July 2006.

The laying of the pipe through Transpower land was undertaken as “Dayworks”, i.e. hourly rates because the steepness and length of the hillside was sufficiently different from the original alignment to make the Schedule rates unsuitable. The extent of this new work also significantly extended the Contract Period, incurring costs for time dependent overheads.

The Contractor submitted its final claim for the costs associated with this extra work in November 2006. The full extent of these extra costs was not evident when the last report was prepared for the Committee in July 2006. The claimed costs have been thoroughly reviewed and agreed by the Engineer.

The final claim increased the total Contract payment so as to exceed the approved financial authority by \$11,532.61.

The final payment has been made to the Contractor as the standard Conditions of Contract require payment to be made within 17 Working Days of the date a claim is submitted.

At the time the 2006/07 budget was prepared all contract payments were expected to be made in the 2005/06 financial year. The extra Contract payments plus additional work required at the pipeline connection points has increased the total project cost for 2006/07 by approximately \$160,000.

2.3.4 Point Howard Pumping Station

Additional costs in 2006/7 have arisen partly because work expected to be completed in 2005/06 was delayed, and partly because additional, and more sophisticated, control equipment was included. The additional costs are expected to amount to approximately \$70,000.

2.3.5 Upgrading of Thorndon Pumping Station

This pumping station dates from 1936, and the pumps and electrical equipment from 1980. The pump station has not been used in recent years, but its refurbishment will reinforce the supply to Karori and Kelburn, and generally enhance security of supply. The pumps and motors have been refurbished and modern electrical control and communications equipment is being installed. Preliminary work was completed in 2005/06, and \$90,000 was budgeted in 2006/07 to complete the project. However, the extent of the refurbishment work necessary was underestimated, and a further \$80,000 is required to complete the project.

2.3.6 Sinclair Creek culvert upgrade

This culvert is on the road into the Orongorongo valley, and is often impassable in storms. Access across the stream has become more vital with the construction of the new Orongorongo telemetry repeater on the ridge. A much larger culvert is required to give more reliable and safer access.

The preliminary estimate and budget was \$100,000, but after review of the design to improve its robustness and receipt of tenders, the work is now expected to cost \$150,000. The work is due to start in mid to late February.

2.3.7 Instrumentation of the distribution network

The new 2005 drinking water standard provides the opportunity for bulk suppliers to prove compliance in bulk distribution networks by continuous monitoring of chlorine rather than the traditional approach of sampling and testing for *E.coli*. GWW have elected to adopt this approach as it provides information on a continuous real-time basis, and is a much superior method of quality control.

Budget provision was made to install instruments and communications equipment at Karori and Thorndon. However the Hutt Valley District Health Board has requested instruments are also installed at Pukerua Bay, at an additional cost of \$55,000. Other escalations of scope and cost mean that, in total, an additional \$75,000 is required to complete work at the three sites.

2.3.8 Te Marua dry polymer dosing

An extra \$25,000 is required to complete this project which will result in more efficient polymer dosing at Te Marua WTP. The extra money is required for a vacuum system which was not originally envisaged, but will make the system safer and easier to operate by reducing dust. Also more sophisticated control equipment will be installed which is suitable to become part of the new plant control system to be installed next year.

2.3.9 Te Marua PAC dosing plant

Powdered activated carbon (PAC) is effective in removing compounds that cause unpleasant tastes and odours, produced by algae, to occur in drinking water. In the past this problem has not arisen, but over a brief period in January 2006 a number of complaints were received and traces of taste generating compounds were detected. A portable plant to dose PAC is being constructed, and an additional \$20,000 is required for its completion.

2.3.10 Minor work

A budget of \$200,000 is allocated to minor works, small projects which comprise unplanned replacements and minor improvements regarded as essential. Forecast expenditure on minor work in 2006/7 is \$285,000. The more significant minor work projects are as follows:

- New pipework to be installed at the old Karori pumping station as part of the decommissioning – expected cost \$50,000.
- Completion of the project to replace and relocate the Wainuiomata WTP flow control valve to extend its life and achieve pumping efficiency gains – forecast \$46,000.
- Installation of special air valves at Wainuiomata to lessen the risk of surge pressures damaging the cast iron pipe laid in 1884 – forecast cost \$63,000.

4. Conclusion

Significant under spending of approximately \$2,356,000 is forecast for the capital works programme, principally through reductions in scope and deferral of projects not immediately necessary. This includes deferral of the project to replace the Kaitoke to Karori water main on Silverstream Bridge. Cost savings are forecast for specific projects.

Additional costs of approximately \$871,000 have been identified as a result of increased scope, increased costs and a proposed new project, which is an environmental and safety issue and considered both important and urgent.

The net result is a forecast under spend of approximately \$1,485,000 in the 2006/07 capital works programme.

5. Part B: Parks

5.1 Programme for 2006/07

The approved capital expenditure infrastructure programme for Parks in 2006/07 is \$608,250.

5.2 Revised 2006/07 Parks Capital Works Programme

	<i>FY Budget \$</i>	<i>FY Forecast \$</i>	<i>Variance \$</i>
Akatarawa Forest – Orange Hut replacement	50,000	20,000	(30,000)
East Harbour Ranger's office	50,000	0	(50,000)
Whitireia Park capital works	200,000	0	(200,000)
Queen Elizabeth Park - barn	0	89,000	(89,000)
Queen Elizabeth Park – toilet block	240,000	240,000	0
Minor infrastructure works	68,250	80,250	12,000
Total	608,250	429,250	(179,000)

As a result, the budget will be underspent by \$179,000.

5.3 Comment

Orange Hut replacement – community groups have expressed an interest in rebuilding the hut which will reduce the cost.

East Harbour Ranger's office – considerable difficulty is being experienced in obtaining a site that has some public exposure. The amount will be rebudgeted for 2007/08.

Whitireia Park capital works – the Council has not yet been invited to take over the management and control of the farm.

Queen Elizabeth Park barn – the barn was shifted at Transit’s expense to allow for construction of the McKays crossing road overbridge. Refurbishment was not originally included in the 2006/07 capital works programme. Of the \$89,000 for refurbishment, prior to use by the horse riding concessionaire, \$14,000 will be contributed by Transit. Hence, the net Council expenditure is \$75,000 but the asset value will be recorded as the actual cost, expected to be \$89,000.

Queen Elizabeth Park toilets – these have been completed within budget.

Minor infrastructure works are spread over several parks, price pressure within a very active construction and materials supply industry has led to some cost increases.