greater WELLINGTON
REGIONAL COUNCIL

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Committee **Utility Services**
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Wholesale Water Capital Works Programme 2005-2006: Half Year Review

1. Purpose

The purpose of this report is to present a summary of the financial position of the projects making up the 2005/6 Wholesale Water Capital Works Programme as at 31 December 2005.

2. Significance of the decision

The matters in this report do not trigger the significance policy of the Council or otherwise trigger section 76(3)(b) of the *Local Government Act 2002*.

3. Summary of Capital Works Programme outcome

The forecast expenditure for 2005/6 Annual Plan projects is **$6,384,000** against a budget of **$5,937,000,** a funding shortfall of **$447,000.** The main reason for the funding shortfall is that four large projects are each forecast to cost more than budgeted due to delays and unforeseen additional expenditure.

4. Background to compilation of Capital Works Programme

The annual Capital Works Programme consists of typically 30 to 35 projects to which funding is allocated. Several of these projects are bulk funded to cover a range of minor and miscellaneous improvement and equipment replacement jobs, which it is impractical to budget for individually. For example, the 2005/6 minor works budget is presently funding 14 jobs ranging in cost from a few thousand dollars up to $90,000.

Usually when the programme is compiled, detailed estimates for the various projects are not available, and funding allocations are based on preliminary estimates. The accuracy of these estimates will depend on the nature of the project, the level of detail of the preliminary investigations, the availability of relevant applicable pricing information from previous similar contracts, and the degree of conservatism adopted when assigning contingencies.

A difficulty also arises from budgeting for large projects that extend over more than one financial year. Programming estimates must be made very early in the course of the project, and for a variety of reasons outside the direct control of council staff these programmes may be difficult to achieve. These reasons include delays in the granting of resource consents, delays in obtaining access to land, poor performance by consultants and poor (or better than expected) performance by the contractors undertaking the work. When projects are delayed, money allocated during a financial year may have to be rebudgeted into the next year to match progress on the project. Conversely, if a contractor makes better progress than anticipated, additional funds will have to be borrowed or found from within the overall programme.

Generally in the past it has been possible to manage project priorities and progress within the overall programme without the need to borrow additional funds.

5. Previous Capital Works Programmes

Over the last few years, expenditure on capital works programmes has generally been consistently less than allocated (see table)

Financial Year	Budget $	Spent to 30 June $	Spent, including rebudget $
2000 - 2001	4,252,000	3,997,000	4,022,000
2001 - 2002	3,905,000	3,515,000	3,515,000
2002 - 2003	2,752,000	2,365,000	2,689,000
2003 - 2004	5,111,000	3,818,000	4,720,000
2004 - 2005	5,312,000	4,103,000	5,415,000
Total	**21,332,000**	**17,798,000**	**20,361,000**

In effect, contingency provisions have been usually more than required, although deferrals and priority changes have also reduced expenditure.

6. Background to 2005/06 Capital Works Programme

The 2005/6 Capital Works Programme is dominated by two projects, the new Karori Pumping Station and the relocation of the Kaitoke main at Haywards. Together these two projects represent 50 percent of the budget and 61 percent of the forecast full year cost.

Site work on the Karori Pumping Station commenced just before the beginning of the financial year, and work at Haywards just after the beginning of the financial year.

Both projects have encountered unexpected ground conditions, requiring an estimated $900,000 in additional funding.

7. Projects where additional costs are expected or have been incurred

7.1 Karori Pumping Station

In order to minimise the impact of this new pumping station, and as preferred by Wellington City Council, the new pumping station is located between Northland Tunnel Road and Chaytor Street, requiring an excavation some 10 metres deep directly below Northland Tunnel Road. Specialist geotechnical advice was sought on the stability of the excavation and on support of the cut face, and an appropriate allowance included in the Contract.

However, during construction an area of soft soil was encountered that required substantially greater support than had been originally envisaged. The cost of this additional support was $195,000. The project is forecast to exceed the budget allowance for 2005/6 by $169,000. The total project cost over three financial years is expected to be $2.8 million.

7.2 Relocation of the Kaitoke main at Haywards

Several issues, all related to site conditions, have contributed to the increased cost of this project.

Part of the pipe alignment runs parallel to State Highway 2 in a narrow corridor between the highway kerb and the foot of a steep hillside. However, over a length of some 90 metres, this corridor was not wide enough to accommodate the pipe, and the alignment had to be shifted partially into the highway carriageway, incurring significant extra costs for traffic control and reinstatement of the highway kerbing and pavement.

Also adjacent to State Highway 2 extensive areas of hard rock were encountered. Although the Contract contained provisions for excavating in hard material, the quantity allowed in the Schedule was insufficient and additional costs were incurred.

The route of the new pipeline travels up the steep slope between State Highways 2 and 58, just south of Transpower's Haywards substation. Several routes were prospected by specialist geotechnical consultants, and that shown on the Contract plans represented the best balance between risk and cost.

However, when trial excavations were carried out, it was found that the chosen route was unacceptably soft and potentially unstable, and alternative routes were further investigated. A more stable but marginally longer route has been identified slightly further north. The new route is very steep in parts and may necessitate special construction techniques in order that it can be built safely. An estimate of the likely extra cost has been included in the forecast.

The project is forecast to exceed the budget allowance for 2005/6 by $720,000. The total project cost over three financial years is expected to be $2.65 million.

7.3 Point Howard Pumping Station

Additional costs in 2005/6 have arisen because of delays to the project, due to the cost of supporting the hillside behind the pumping station during construction being higher than expected. In addition, the cost of building a robust structure that would survive an earthquake generated rock slide was higher than budgeted for. The pumping station is located on a narrow shelf between a steep hill side and sediment deposits, which are potentially subject to liquefaction or displacement in an earthquake.

The project is expected to exceed the budget allowance by $118,000. The total cost is now expected to be $800,000, spread over three financial years.

7.4 Split stream treatment at Te Marua

The capacity of the Te Marua Water Treatment Plant is nominally 130 megalitres per day. However, this quantity of water is not available under all conditions. Treatment of lake water is limited to about 80 megalitres per day, and there are also limitations on blends of lake and river water. Use of lake water alone during periods of high demand, i.e., dry weather, would be very unusual. However, as the population and water demand increases, greater use will have to be made of lake water blended with river water. Preliminary estimates put the cost of this project at $300,000. However, a more detailed appraisal taking into account the full implications of keeping the plant operational during the work and of the complex twin stream process controls suggests that $565,000 will be spent this financial year to complete the work. A total of $31,000 was spent last financial year.

The project is expected to exceed the budget allowance for 2005/6 by $265,000.

7.5 Minor work

Each year a budget of around $300,000 is allocated to minor works, small projects which comprise unplanned replacements and minor improvements regarded as essential. Forecast expenditure on minor work in 2005/6 is $516,000. The more significant minor work projects are as follows:

- Replacement of pump control valves at Waterloo to improve pumping efficiency – cost $27,000.

- Relocation and replacement of the Wainuiomata Water Treatment Plant flow control valve to extend its life and achieve a number of other benefits – forecast $148,000.

- Upgrading the Wainuiomata and Moores Valley Road Pumping Stations to improve the operating efficiency – forecast $119,000.

- New valves in the Waterloo wellfield to improve its operability – cost $58,000.

- Upgrade to the Sustainable Yield Model (SYM). These upgrades are

required to enable the SYM to be used in future source studies – forecast $90,000.

7.6 Other

Essential upgrades and replacements at the Gear Island Water Treatment Plant are expected to cost $50,000 more than budgeted.

Seismic protection work is expected to cost $58,000 more than budgeted.

Completion of 2004/5 projects has cost $29,000.

8. Savings achieved

8.1 Summary

A number of savings that fit under various categories have been made within the Capital Works Programme which partially fund the additional costs identified above in the current financial year.

8.2 Reduced scope

The scope of a number of projects has been reduced, resulting in a saving of $559,000.

8.3 Deferral

A number of projects have been deferred or delayed, resulting in a saving in the current financial year of $501,000, though this sum will be incurred in future years.

8.4 Direct cost savings

Direct cost savings on a number of projects are expected to result in saving of $118,000.

9. Summary of savings and additional expenditure by project type

Summary of projected savings and additional expenditure by asset type

Category	Budget $	Forecast $	Variance %
Source Projects	430,000	167,000	-61
Treatment Plant Projects	1,005,000	948,776	-6
Pipeline Projects	1,660,000	2,020,000	+22
Pumping Stations and Reservoirs	2,312,000	2,517,500	+9
Monitoring and Control Projects	130,000	27,500	-79
Minor Works, Seismic Protection and completion of 2004-2005 projects.	400,000	703,250	+76
Total	**$5,937,000**	**$6,384,026**	**+7.5**

A more detailed breakdown is contained in Attachment 1.

10. Contract approvals

10.1 Contract No. 1239 - Karori Pumping Station Building

Authority to spend up to $937,535 is held under the approval given by the Chief Executive to a report dated 4 May 2005. The currently forecast completed cost of the contract is $997,000. Approval to spend an additional $60,000 will be sought from the Chief Executive.

10.2 Contract No. 1241 - Relocation of Kaitoke main at Haywards

Report PE-05.301 dated 21 June 2005 sought approval to accept a Tender for the work in the amount of $1,277,165 (excluding GST). This report was approved by the Utility Services Committee at its meeting on 23 June 2005.

The forecast cost of Contract No.1241 is now $1,700,000. Approval to spend an additional $423,000 will be required from the Utility Services Committee. Uncertainties still exist on this project and there is a small risk that further funding may be required.

11. Conclusion

Significant additional costs have been incurred or are expected on several large projects, primarily because of unexpected ground conditions. While significant savings have been generated within the Capital Works Programme by deferring or reducing the scope of other projects, a forecast shortfall of $447,000 remains to be funded.

12. Recommendation

It is recommended that the Committee:

1. ***receive*** *the report and note its contents.*
2. ***recommend*** *to the Policy, Finance and Strategy Committee that the detail changes outlined in this report are approved, including additional funding of $447,000.*
3. *Approve the expenditure of an additional $423,000 on Contract No. 1241, subject to the approval of additional capital works funding by the Policy, Finance and Strategy Committee.*

Report prepared by:	Report approved by:
Alastair McCarthy	**Murray Kennedy**
Acting Strategy and Asset Manager	Divisional Manager,
Greater Wellington Water	Water Supply, Parks and Forests

Attachment 1: 2005-2006 Capital Works Programme Details of Expected Changes

2005-2006 Capital Works Programme
Details of Expected Changes

Savings

Projects where scope has been reduced

	$	Total $
Te Marua Intake	95,000	
Te Marua Water Treatment Plant Replace Equipment	84,500	
Waterloo Water Treatment Plant Replace Equipment	37,442	
Waterloo Aeration	8,766	
Wainui Water Treatment Plant Replace Equipment	70,000	
Water Treatment Plant Unplanned Minor Replacement/Refurbishment	160,516	
Meter Replacement/Additions	30,000	
Telemetry System Renewal	27,500	
Control System Upgrade	45,000	
		558,724

Projects deferred or delayed

	$	Total $
Strengthen Lake Towers (Investigation/Design)	60,000	
Sentinel Wells Petone Foreshore	90,000	
Relocate Kaitoke Main on Silverstream Bridge	70,000	
Purchase Seismic Repair Pipe Stocks	200,000	
Thorndon Pumping Station Upgrade	16,500	
Randwick Pumping Station Modifications	45,000	
Takapu Reservoir (Investigations)	20,000	
		501,500

Projects where costs are expected to be reduced

	$	Total $
Wainuiomata Lower Dam	18,000	
Valve Replacements 2005/2006	90,000	
Wainuiomata Water Treatment Plant filter to waste	10,000	
		118,000
Total Expected Savings		**1,178,224**

Additional Costs

Projects where scope has increased

	$	*Total $*
Gear Island Water Treatment Plant Replace Equipment	50,000	
Minor Work	215,835	
Seismic Protection	58,828	
		324,663

Projects where additional costs are expected or have been incurred

	$	*Total $*
Te Marua Water Treatment Plant Split Stream Development	265,000	
Relocate Kaitoke Main, State Highway 2 to State Highway 58	720,000	
Karori Pumping Station Relocation	169,000	
Point Howard Pumping Station	118,000	
		1,272,000
Completion of 2004/5 Projects		28,587
Total Additional Costs		**1,625,250**

Summary

Total 2005/6 project savings	1,178,224
Total 2005/6 additional costs	1,625,250
Total 2005/6 net additional costs	**447,026**