

1. READING OF DOMESTIC WATER METERS

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The purpose of this report is to review water meter reading activity in Christchurch, advise of present-day costs and benefits, and to seek a Council decision on whether or not to continue current practice.

One aspect of the recently adopted Council Change Proposal involved elimination of domestic meter reading. It was agreed then that as this is a level of service issue it should be referred to the City Services Committee and the Council for recommendation.

1 ARGUMENTS FAVOURING DISCONTINUING DOMESTIC METER READING

1.1 Cost Savings

Today commercial users pay for water on a basis that provides a capital value-based allowance and charges for use in excess of that allowance by volume. Domestic consumers pay capital value-based rates for their water. Domestic meters are read and the information used to advise high consumers. Five people are employed in meter reading, with a further commitment in Financial Services to analyse readings and invoice commercial customers. Out of a total cost of \$1,181,000, (which covers meter reading, database maintenance, invoicing, collection, renewals and maintenance) \$290,000 could be saved by not reading the domestic meters. This would make three of the five readers surplus plus require downsizing of the Financial Services input by 1.0 FTE. \$100,000 of this saving is an estimate of the connection/meter maintenance that will not be carried out because it will not be observed.

1.2 Ability to Justify Financially

In 1996 research was carried out for the Council by Montgomery Watson which examined the financial wisdom of implementing various water conservation initiatives. Because water is very cheap in Christchurch very few could be justified in cost-benefit terms, ie the cost of implementing the measure was not matched by the value of water saved. Even given the significant reduction in use that can be achieved with consumption-based charging the value of the water saved did not match the cost of reading and maintaining meters and collecting the revenue.

1.3 **Need for Domestic Meter Information in Managing System Leak Reduction**

The Council undertakes a public system leak reduction programme in a deliberate attempt to measure and reduce the percentage of unaccounted-for water. At first glance it would appear that knowing the domestic consumption as measured through the meter would be an essential part of the equation that determines unaccounted-for water. In practice, however, our leak detection measurements, which concentrate on zones of the city and which through a combination of zones provide a picture of the city overall, give a much more accurate assessment of unaccounted-for water. The domestic meter reading result is not used in this calculation—its reliability is compromised by the fact that meter readings occur throughout the year and we never have a ‘year’s consumption’, only an average annual consumption that has occurred over a two-year period.

It should be noted that individual domestic meters **are** read as part of the system leak detection programme so their **presence** is important but annual reading is not necessary for this procedure. A further point to note is that a lack of routine inspection, reading and maintenance would gradually reduce the reliability of the meters for this leak detection purpose.

2 **ARGUMENTS IN FAVOUR OF CONTINUING DOMESTIC METER READING**

2.1 **Costs associated with stopping then re-starting**

It has taken a major effort over several years to create a reliably metered city. It is only by regular (say, annual) on-site inspection and reading that this reliability can be maintained. If reading ceases for a period then there will be a large loss of detailed knowledge about meter location and considerable effort required to restore that reliability in the event that reading is re-introduced. If cost is the only consideration it is economic to stop reading and re-start again providing the break is three years or longer.

2.2 **Use of meter reading as demand management tool**

Our effort in this area has been light-handed and much more could be done, for example by targeting the top 25% of household consumers who use 50% of the domestic water. We doubt that the savings in peak demand quoted by Orion would be achieved without consumption-based charging. With charging significant consumption reduction can be achieved. To quote from the Parliamentary Commissioner for the Environment report, June 2000:

The use of metering and flow-based charges ultimately results in greater efficiency and lower water use. There is substantial evidence that metering leads to a marked and sustained reduction in both peak demand and annual usage. Typically, in New Zealand, reductions in annual use following the introduction of metering are at least 15% as demonstrated by the Auckland City Council and Tasman District Council. Over nine years, Rotorua District Council experienced falls in average annual use (35%) and peak demand (50%). Christchurch City has installed meters and notifies residents of their water use but the Council does not use flow-based charges. The meters are used to identify any leaks in the system and have the potential to be used as an education tool.

If the demand management activity centred around meter reading is increased some new costs will be involved. To cover this, we can use some of the funding already allocated for conservation promotion and there is a small spare resource available within the current meter reading activity.

2.3 Inspection

Meter readers perform a useful inspection of the whole city, particularly checking the water supply asset but also noting other problems that involve Council responsibility including rubbish bags, dogs, potholes, overhanging trees, missing covers etc. This function could be significantly enhanced quite simply by programming the meter reader's hand-held datalogger with codes that identify the problem and associate it with an address.

2.4 Leak Detection

In the first years of meter reading, leak detection on private property was significant and many private repairs were made (600 in the first year). This has decreased but the check is still a valuable one. An important element of education occurs assisting the owner to locate the leak and effect a repair. A further thrust of this work is the detection of illegal or wasteful use or commercial activity functioning through a domestic connection.

3. SUMMARY

Arguments for discontinuing domestic meter reading include:

- Of the \$1,181,000 required to read and maintain the meter system and to invoice commercial consumers, \$290,000 could be saved if reading of domestic meters were discontinued. \$100,000 of this is connection/meter maintenance that will not be carried out because it will not be observed.
- In strict benefit cost terms domestic meter reading cannot be justified. The value of saved water cannot match the cost of meter reading.
- System leak-detection work aimed at reducing unaccounted-for water does not rely on the annual meter reading information.

Arguments against this course of action include:

- As the city moves into an era of increasing restraint on aquifer use meter reading, and possibly consumption-based charging, will be important elements of demand management.
- Significant effort will be required to reinstate the domestic meter system if reading is discontinued.
- Current reading practice allows education of high consumers - an activity that could be enhanced.
- The current activity assists domestic leak detection and provides a visual inspection of the street environment as well as the water connection and meter installation. It also assists the detection of illegal or wasteful use.

- Recommendation:**
1. That reading of meters be continued to provide information for use in:
 - (a) identifying high use domestic consumers
 - (b) identifying and rectifying domestic leakage
 - (c) developing conservation programmes
 2. That as a further step to achieve water use efficiencies, the meters be used to identify the top 20 per cent of domestic water users and that the reasons for their high use be investigated.
 3. That water meter readers be used to assist with minor maintenance matters such as reporting potholes, overhanging trees etc.
 4. That the Council confirm that it has no intention of introducing consumption based charges for consumers.