

<b>ORDINARY MEETING</b> <b>21 MARCH 2012</b>	<b>31</b>
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WATER DEMAND MANAGEMENT STRATEGY - PRESSURE MANAGEMENT

A Newton-Bird: 24/20/141: #3491548

**RECOMMENDATION:**

**That Council:**

1. **Notes pressure management activities on water supply networks may reduce water pressure for existing elevated properties below accepted standards.**
2. **Approves the option for Council to supply and install booster pumps on existing properties, at Council cost, in instances where water pressure management activities in an adopted pressure management zone cause water pressure to drop below 220 kPa at existing elevated house sites only.**
3. **Will transfer ownership of the booster pump to property owners who will subsequently be responsible for operating, maintenance, and pump replacement costs.**

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**INTRODUCTION:**

As part of the Demand Management Strategy first adopted by Council in 2006, CRC Water and Waste is implementing water pressure management actions in water supply networks across the Council region to gain operational efficiencies, reduce the amount of non revenue water losses, and extend asset life.

When pressure management actions are implemented, the pressure of water supplied to individual elevated houses may be reduced below Council's Customer Service Standards. Properties that may be impacted generally have houses significantly elevated above their front boundary.

Council has several options of dealing with these individual houses. This report explains these options and recommends a preferred option for consideration by Council.

**BACKGROUND:**

Council first adopted a water supply demand management strategy in March 2006. This strategy included a range of activities including pressure management. The strategy was reviewed and re-adopted in July 2009 for a further three-year period. This strategy also included additional pressure management activities.

Council considered a report in July 2010 which explained the rationale behind water pressure management and provided a summary of proposed pressure management activities in various suburbs where high pressure has been identified

In October 2010, council adopted the Division 10 Water Supply Planning Report – Demand Management which included proposed pressure management activities in the Douglas area.

Pressure Management involves the planned reduction of excess pressures within the water reticulation network to within acceptable operational levels whilst maintaining the adopted Customer Service Standards. Council's Fact Sheet on Pressure Management is provided as Attachment 1 for Council's information.

The benefits of Pressure Management are well documented in the Industry and are encouraged by State and Federal Government via funding assistance which Council has received. These benefits include:

- Extension of Council asset life
- Reduction of burst mains
- Reduction of non-revenue water
- Reduction in water supply operating costs
- Reduced water accounts for customers
- Improved plumbing asset life for residential and commercial properties
- Improved continuity of water supply including the deferment of supply augmentation
- Network efficiency
- Reduced risk of subsidence events in roads and footpaths due to mains bursts.

Pressure management can be effected at a district or regional scale through reconfiguring of the water reticulation network and installation of pressure limiting devices. A maximum water pressure at property boundaries of 500 kPa is being targeted across the Council region. This is due to the legislated requirement for all new water meters to be pressure limited at 500 kPa.

Minimum water pressure that Council aims to provide to the property boundary is currently set at 220 kPa in Council's Customer Service Standards. When implementing pressure management, in some instances discrete properties can be subject to pressures below 220 kPa at the property boundary. If such properties have houses elevated above the property boundary, the pressure supplied to the house will be below the minimum of 220 kPa.

The two main options available to allow pressure management to occur and maintain an acceptable pressure in these isolated instances include:

1. Installation of a booster pump on individual properties with subsequent transfer of ownership of the pump to the property owner
2. Reconfiguration of the water supply network which could include considerable cost and customer impacts.

**COMMENT:**

In order to maintain supply where it has been identified that water pressure may drop below the minimum 220 kPa at an elevated house, the following is proposed:

- Undertake consultation with the affected property to inform them of Council's intention of pressure management and offer to supply and install a booster pump within the property to maintain a minimum of 220 kPa to the habitable floor level of dwellings
- Advise the owner that they will be responsible for all ongoing costs including electricity, maintenance, and replacement of the pump. The manufacturer's guarantee on the pump will be passed onto the property owner.
- Place a notation on the rates file of the affected property indicating that Council has supplied and installed a water booster pump and the customer is now responsible for all future costs incurred with the operation and maintenance of the pump.

The cost to Council of supplying and installing the booster pump station will be offset by the benefits achieved from pressure management over a regional scale. The cost of pump supply and installation will vary depending on location but is likely to be in the order of \$2,000 to \$5,000.

The cost to the property owner will vary but on is likely to be less than \$100 for electricity on an annual basis, and every 5 years or so a small amount for pump servicing. Pumps generally come with a 2-year warranty and generally have a useful life of 20 to 25 years.

**CONSIDERATIONS:****Corporate and Operational Plans:**

*Corporate Plan 2009 – 2014*

***Goal 1 - Caring for the Environment:***

Objective 1.1 Deliver improved management of the region's natural resources and biological diversity for sustainability and ecosystem health.

Objective 1.7: Deliver more environmentally sustainable Council operations and facilities;

***Goal 4 - Delivering Services and Infrastructure:***

Objective 4.1: Provide a robust, secure, high quality water supply to meet the growing needs of the community.

Objective 4.2 *Encourage wiser use of water by all members of the regional community*

Objective 4.4 *Deliver effective long-term maintenance and renewal of existing infrastructure and community assets.*

Statutory:

Council has an obligation under the *Water Supply (Safety and Reliability) Act 2008* to have a System Leakage Management Plan approved by the Department of Environment and Resource Management. Pressure management is a key action in the approved System Leakage Management Plan.

Policy:

The Water & Waste Customer Service Standards set a target minimum and maximum water pressure at the property boundary of 220 and 500 kpa respectively.

Financial and Risk:

Funds for pressure management activities have been identified as part of the Council's Demand Management Strategy. Council has also received Federal Government funding of \$1,084,000 for Demand Management activities in the Douglas area which needs to be expended by 30 June 2012 under the funding deed.

Council has received legal advice from King & Co Lawyers regarding its obligations as Water Service Provider. From a legal perspective only, Council is not obliged to supply water at the minimum prescribed pressure because of the physical constraints of the property and, if the owner is not prepared to supply tanks and pumps, the Council is not obliged to supply water to such properties at all.

Council is legally entitled to reduce the present supply pressure to that prescribed by the Customer Service Standard, without there being any risk of exposure to legal liability from customers, including customers existing prior to the Customer Service Standard taking effect.

Sustainability:

In addition to prolonging the need for a new water supply for the region, more efficient use of existing and future water supplies has a number of important environmental benefits such as:

- Reducing the impact on rivers by protecting environmental flows that are critical for river system health
- Reducing energy needed to transport and treat potable water and wastewater thereby reducing greenhouse gas emissions
- The deferral of new sources will defer impacts on catchments such as disruption of downstream flows affecting riverine and estuarine ecosystems
- Reduce power and chemical consumption.
- Reduce water treatment plant discharges to sewer and the environment (e.g. backwash and waste discharges).

- Lower pressures will also result in reduced maintenance and repair of leaks and pipe bursts resulting in lower costs and energy consumption.



### **CONSULTATION:**

This report has been developed in consultation with staff from Water & Waste Operations, Infrastructure, and senior management. In addition external legal advice was sought to confirm the obligations of a Water Service Provider in accordance with the Water Supply & Reliability Act 2010.

### **OPTIONS:**

The following are the available options with regard to properties that may have water pressures reduced below either the Customer Service Standards.

Option 1 - Council offer to install an individual booster pump with ownership of the pump subsequently transferring to the property owner. The property owner would thereafter be responsible for all ongoing costs including electricity, maintenance, and replacement of the pump.

Option 2 - Council advise customers of the need for them to install their own tanks, booster pumps, or infrastructure to maintain pressure at their property.

Option 1 is considered the preferred options as there will minimal initial cost to Council, subsequent savings to Council though pressure management and good customer relations will be maintained.

### **CONCLUSION:**

It is recommended that Council approve Option 1 to offer to install booster pumps at existing properties where the water pressure falls below 220 kPa at the habitable floor level of the property due to pressure management activities in an adopted pressure management zone. Pump ownership will then transfer to the property owner who will thereafter be responsible for electricity, maintenance and pump replacement costs.

**Attachment 1**

Pressure Management Fact Sheet #3390783

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# Water Pressure Management Program Fact Sheet

## *Improving the reliability of our water supply*

### Why is Council introducing a Water Pressure Management Program?



There are many areas in the Cairns Regional Council area that have excessively high water pressure.

High water pressure contributes to burst water mains, leaks and water waste. Through this program Council can reduce leaks, improve the reliability of the water supply system and save water.

Pressure and leakage management is a Queensland State Government requirement.

Managing network pressure will assist Cairns Regional Councils Water & Waste to provide a sustainable water supply and meet future development needs.

### What is water pressure management?

Water pressure management involves adjusting water pressure levels in the water supply system using a pressure reducing valve (PRV) to save water and improve service levels to our customers.

Water pressure management is the use of pressure regulating valves and system monitoring points to achieve more consistent and lower water pressure levels across the water supply network.



**Diagram:**  
Example of a Pressure Reducing Valve (PRV)

### What is water pressure - How does it work?



Water pressure is a measure of the force needed to move the water from our mains into your pipes.

Think of a garden tap and hose. If the hose connector doesn't fit properly, when you turn on the water some of it squirts out of the top, instead of flowing through the hose. If you turn the tap on harder, it spurts even more water out through the top because of the increase in pressure. Sometimes it even pops off the tap.

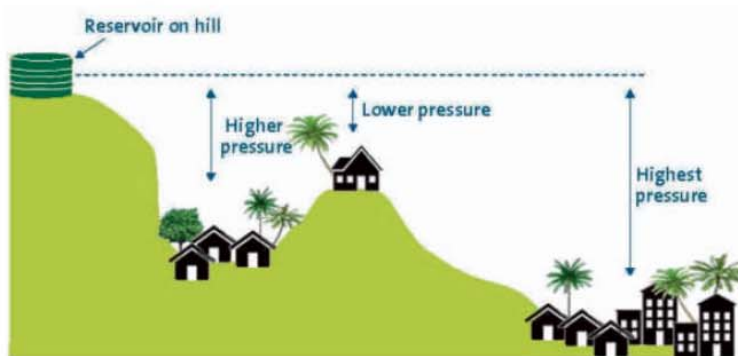
It's the same sort of thing in our water system. If pressure is high it forces lots of water through the little holes and cracks, and sometimes that can cause the pipes to burst.

By reducing the pressure, less water is squeezed out of the holes, and in some cases virtually no water escapes.

## Why do some areas have higher pressure than others?

- Water is distributed to customers through a network of water supply zones.
- Water reservoirs are located at high points in each water supply zone.
- Water is distributed from the reservoir across the zone using a gravity system.
- Water pressure varies at different locations in the zone depending on how far you are from the reservoir and your property's elevation in relation to the reservoir.

Only those areas in Cairns Regional Council zones with excessively high water pressure will have pressure management introduced.



### Water pressure management diagram demonstrates:

- Properties in low areas receive higher water pressure.
- Properties in high areas receive lower water pressure.

## How will you be affected personally?



Most residents and businesses in the selected areas will not be significantly affected.

Reducing the water pressure does not mean you'll have less water. You may need to turn on the tap more, and it could take a little longer to fill a bath or washing machine.

Some instantaneous hot water systems, corroded galvanised pipes or existing pressure reducing valves may not work as effectively when the pressure is reduced and your systems may need to be upgraded.

If you have a fire suppression system or business that depends on water pressure, you may need to make some changes to these when the pressure is reduced.

The pressure reduction should not affect home dialysis patients, and all residents on the home dialysis register will be contacted personally regarding the programs and any questions they may have.

Council will notify customers in the selected areas, in advance if their property will be included in the Water Pressure Management Program.

## What should I do if I experience a water pressure problem?

If you experience any pressure related issues please check that:

- The tap on your water meter that controls flow to your property is fully turned on.
- Any taps that control flow to your hot water system and other devices are fully turned on.

**If you continue to experience water pressure problems, please phone Council Customer Service on 4044 3044 or 1800 070 444.**



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