

# Tauranga City Council



## Implementing a Backflow Protection Programme

citywaters



# Aa Water Quality

- Catchment Management
- Improved Water Treatment
- Improved Reticulation Management
- Hygiene Practices – Contractors & Operators
- Backflow Prevention
- Public Health Risk Management Plans

# Regulatory Framework – Backflow Protection

- ✦ Water Supply Protection Regulations 1961 (to be Repealed 1.07.08)
- ✦ Building Act 2002- G12
- ✦ Councils General Bylaw 2007
- ✦ Health (Drinking Water) Amendment Act

# Higher Backflow Risk (Existing Connections)

- ✦ All existing connections are covered by the WSPR (1961)
- ✦ Any installation of a connection to be vested with council shall be installed by a Licensed Contractor
- ✦ The equipment shall be vested with Council who will test and maintain.....

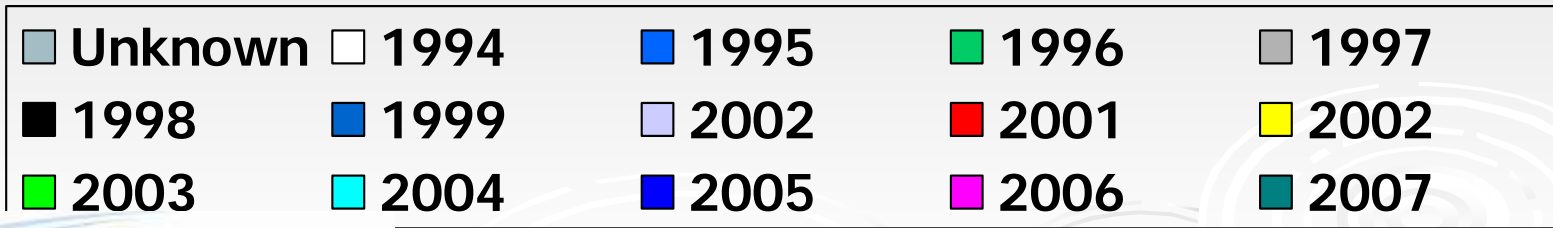
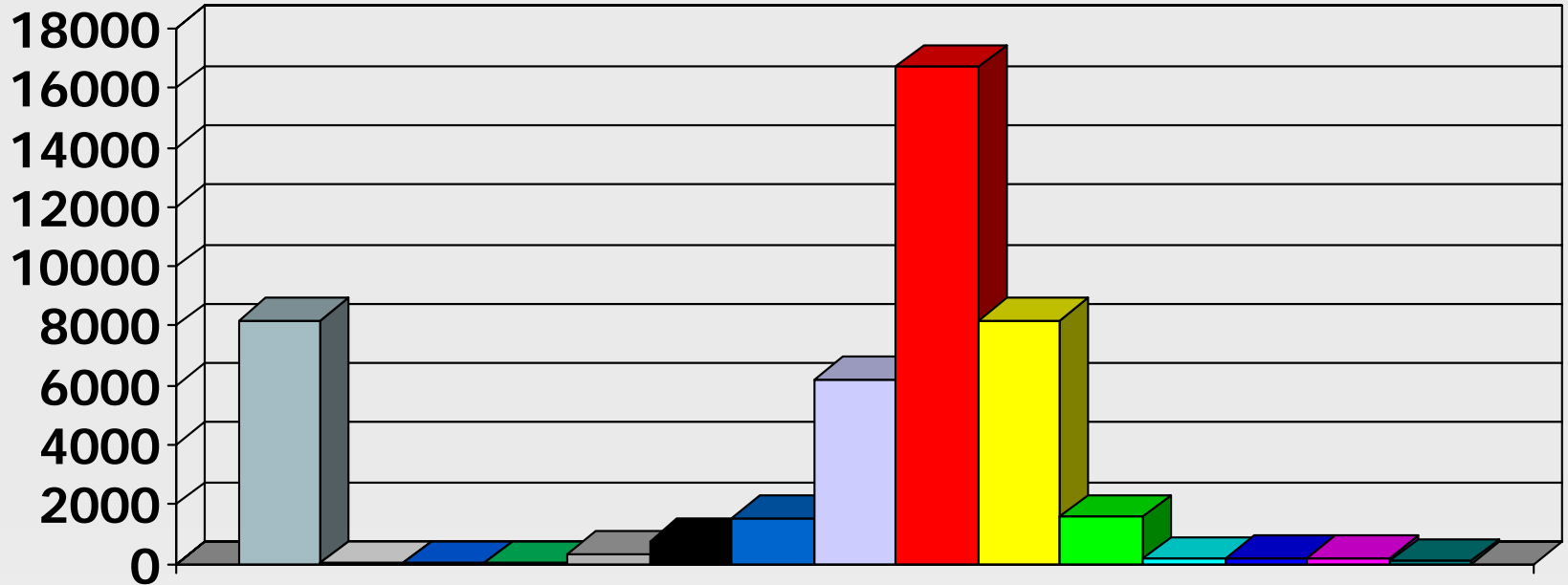
# Higher Backflow Risk (new connections)

- ✦ Council Bylaw changed in 2007
- ✦ Any reference to backflow protection is covered under the Water Supply Protection Regulations (1961)
- ✦ Reference is made to the Building Act as a means of compliance.

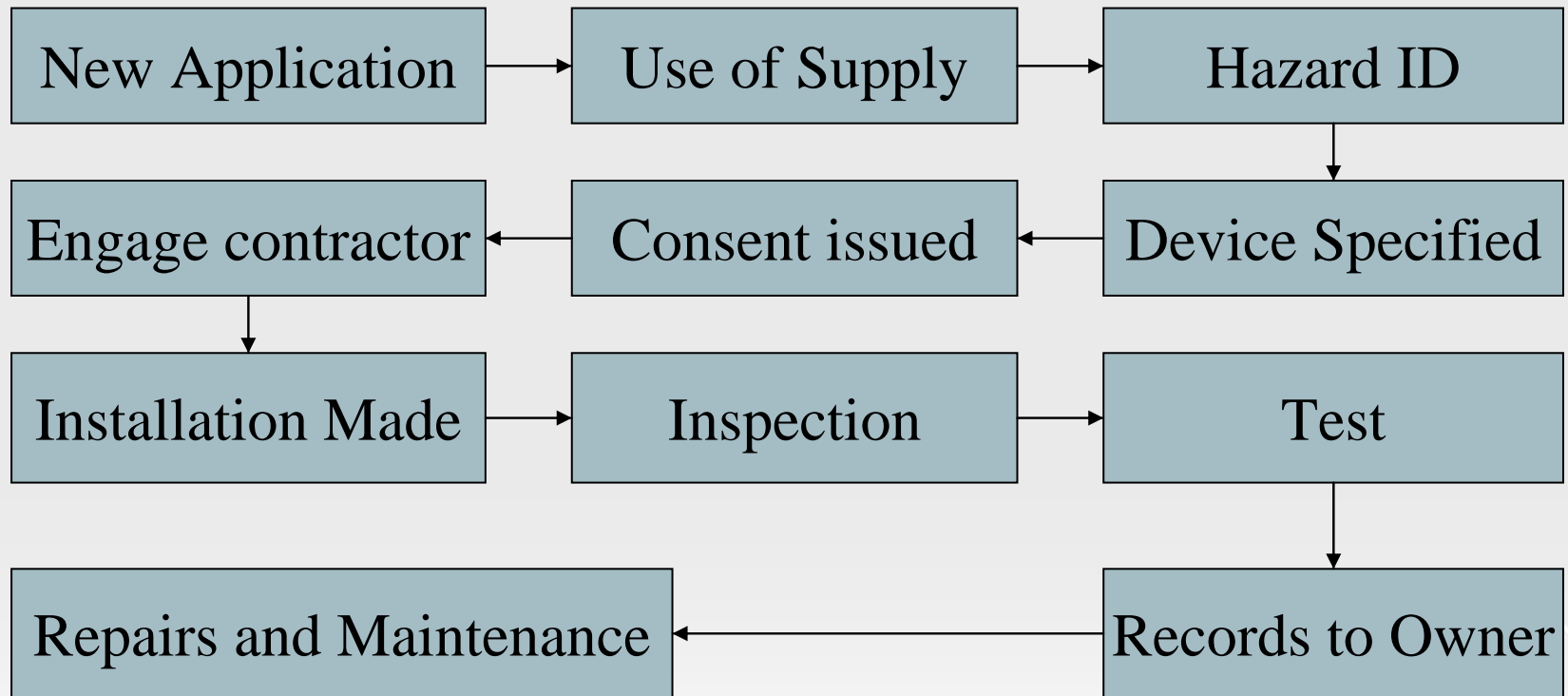
# Low Risk

- ✦ All domestic connections have a manifold (dual check)
- ✦ Installed as part of a district-wide installation contract in 2001
- ✦ Total cost \$9.75m
- ✦ All properties are metered- Kent MSM and Sensus meters

# Backflow installations



# Systems and Processes



# Systems & Processes (Continued)

Owner	New Connection Application
Owner	Use of Supply
TCC	Hazard identified
TCC	Backflow requirements specified
TCC	Connection Consent issued
Owner	Engage Licensed Contractor
Licensed Contractor	Carry out Installation

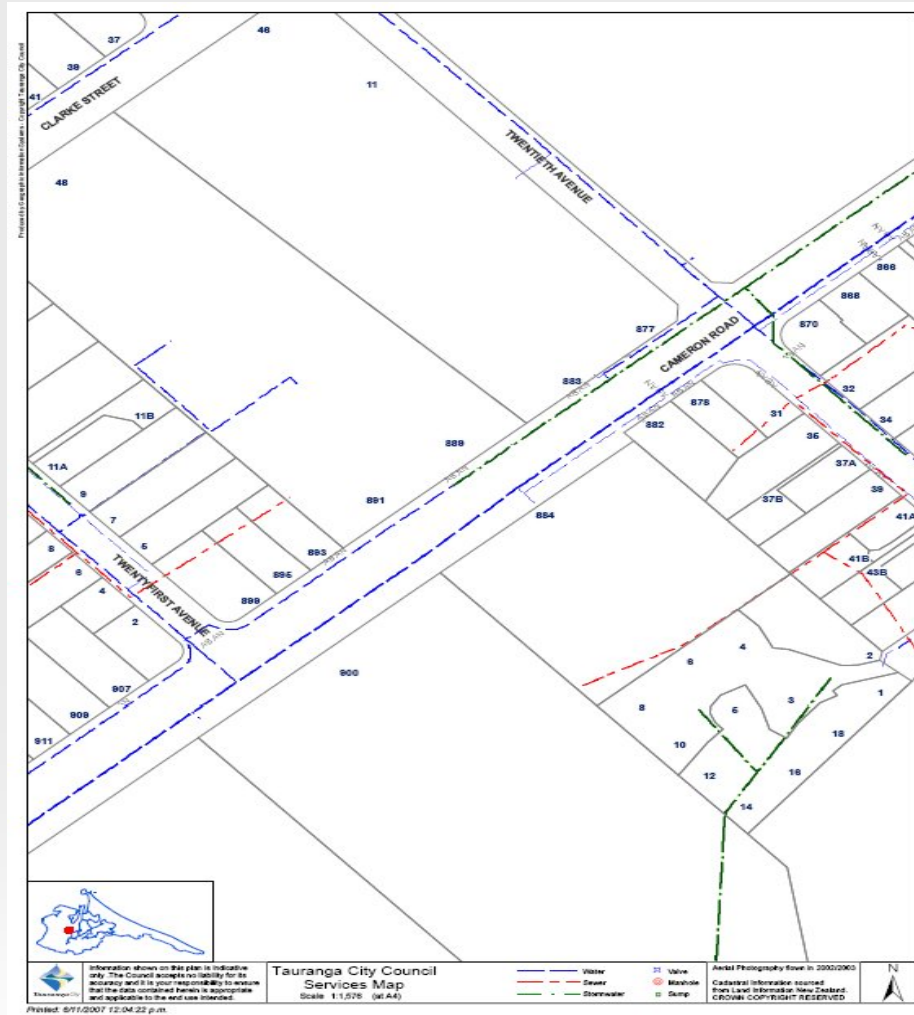
# Systems & Processes (Continued)

TCC	Check compliance
IQP/contractor	Test device
TCC	Test Certificate to Owner and TCC
TCC/ Contractor	Repairs/ Maintenance

# Systems/Processes

- ✦ Backflow Device – Recorded in Hansen
- ✦ Hazard – Recorded in Hansen
- ✦ Owner – Origen System
- ✦ Hansen/Origen integration (Metering and Billing)
- ✦ GIS Browser interface
- ✦ Tracking of processes

# GIS Browser Interface



# Hansen record

**Water Backflow Preventer Inventory**

Backflow ID: 61728TOBYBFA

Address: 81 HEWLETTS RD

Backflow Type: RPZ

Manufacturer: WILKIN

Model #: 975XL

Serial #: 1405418

Backflow Size: 50

Pressure Zone:

Location | Structural | **Associated** | Comments | Maint | Insp | Custom

# First test (Failed device)

**Water Backflow Assembly Test**

Inspection #  Work Order #  Activity   
Backflow ID

Started  :  Crew   
Completed  :  Tester   
Comp By   Failed  
Project

	Check Valve #1	Check Valve #2	Pressure Relief Valve	PVB/SVB
Initial Test	Held At <input type="text" value="71"/> KPa <input type="checkbox"/> Leaked	Held At <input type="text" value="0"/> KPa <input checked="" type="checkbox"/> Leaked <input type="checkbox"/> Closed Tight	Opened At <input type="text" value="0"/> KPa <input type="checkbox"/> Did Not Open	Air Inlet Opened At <input type="text" value="0"/> KPa <input type="checkbox"/> Did Not Open
Time	<input type="text"/> : <input type="text"/>			Check Valve Held At <input type="text" value="0"/> KPa <input type="checkbox"/> Leaked
Final Test	Held At <input type="text" value="0"/> KPa	Held At <input type="text" value="0"/> KPa <input type="checkbox"/> Closed Tight	Opened At <input type="text" value="0"/> KPa	Air Inlet Opened At <input type="text" value="0"/> KPa Check Valve Held At <input type="text" value="0"/> KPa
Time	<input type="text"/> : <input type="text"/>			

Inspection Data **Repairs & Materials** Comments

# Test after maintenance

**Water Backflow Assembly Test**

Inspection #  Work Order #  Activity   
Backflow ID

Started  : Crew   
Completed  : Tester   
Comp By   Failed  
Project

	Check Valve #1	Check Valve #2	Pressure Relief Valve	PVB/SVB
Initial Test	Held At <input type="text" value="64"/> KPa	Held At <input type="text" value="0"/> KPa	Opened At <input type="text" value="18"/> KPa	Air Inlet Opened At <input type="text" value="0"/> KPa
Time	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> Did Not Open
	<input type="checkbox"/> Leaked	<input type="checkbox"/> Leaked <input checked="" type="checkbox"/> Closed Tight	<input type="checkbox"/> Did Not Open	Check Valve Held At <input type="text" value="0"/> KPa
Final Test	Held At <input type="text" value="0"/> KPa	Held At <input type="text" value="0"/> KPa	Opened At <input type="text" value="0"/> KPa	<input type="checkbox"/> Leaked
Time	<input type="text"/>	<input type="text"/>	<input type="text"/>	Air Inlet Opened At <input type="text" value="0"/> KPa
		<input type="checkbox"/> Closed Tight		Check Valve Held At <input type="text" value="0"/> KPa

Inspection Data **Repairs & Materials** Comments

# Asset Management Non-Testable Devices

- ✦ Proactive approach - Sample group (meter/manifold)
- ✦ Reactive approach - Maintenance with meters
- ✦ Dual Check unit replaced
- ✦ Volumetric / age

# Asset Management Testable Devices

- ✦ Annual Test
- ✦ Relief discharge
- ✦ Volumetric / age

# Cross-Connection Survey

- ✓ Three-yearly cycle.
- ✓ Inspect all properties
- ✓ Once a hazard is identified Council communicate with the owner to install a device.

# Annual Testing Contract

- 2001 - Council let a contract to carry out the annual test of the containment devices
- From 2004 included in Maintenance contract.
- Monthly test program extracted from Hansen by contractor

# Condition of Tender (2001)



No Sub-contracting of the work



Tenderers to provide:

1. Completed 40 hr education
2. Calibration certificate for test gauge
3. Qualification as IQP and by whom
4. Contract rates

# Contract

- ✦ Commenced with 250 devices (210 RPZ, 50 DCV and 10 PVB)
- ✦ @ October 2007 we have 1575 total
- ✦ Numbers are spread through the calendar year.

# AUDIT PROCESS

- Random audit of 10% monthly
- Auditor is independent from Council
- Pre-requisite: 40hr approved Surveyor
- Written report submitted

# Conclusions

- Require Political will (and bylaws)
- Put in the controls and systems for success
- Get all the players on board
- You will be challenged!