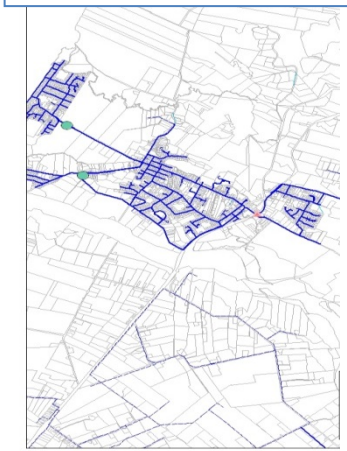
Keeping water in the pipes

We all have a part to play

Kāpiti Coast
DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

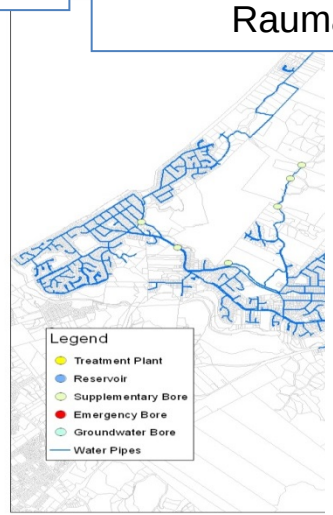
Public Water Supplies

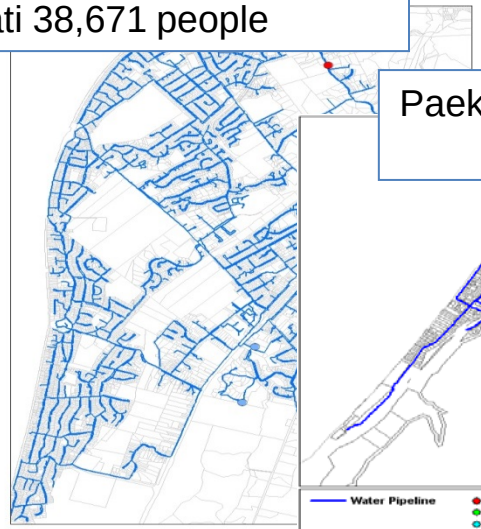
Otaki / Waitohu
Scheme 5,883 people



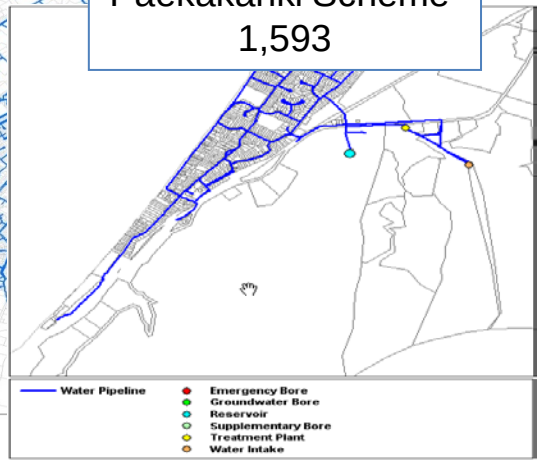
Hautere / Te Horo
Scheme 803 units

Waikanae / Paraparaumu /
Raumati 38,671 people





Paekakariki Scheme
1,593



46,500 people served

22,000+ properties


15.2
Million
litres per day
24 / 7 / 365

11 Aquatic
centres every day

5.5 Billion
litres per year


570km
of pipes
Kaitaia
Paihia
Whangarei
Auckland
7 h 18 min
576 km
Rotorua
7 h 13 min
570 km
Gisborne
North Island
Napier
Palmerston North
Otaki
Nelson
Wellington
Blenheim
Google
Map data ©2017 Google

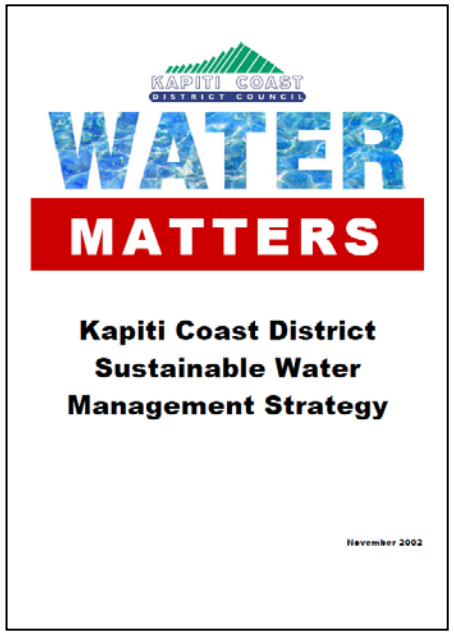
Both sides of the fence

Public side

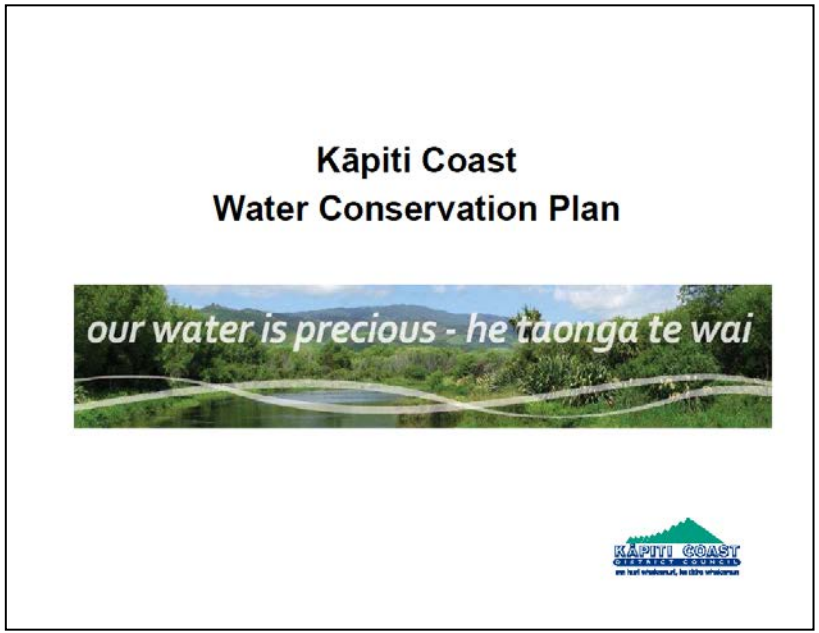
Private Side

Guidance

2003 Water Matters Strategy



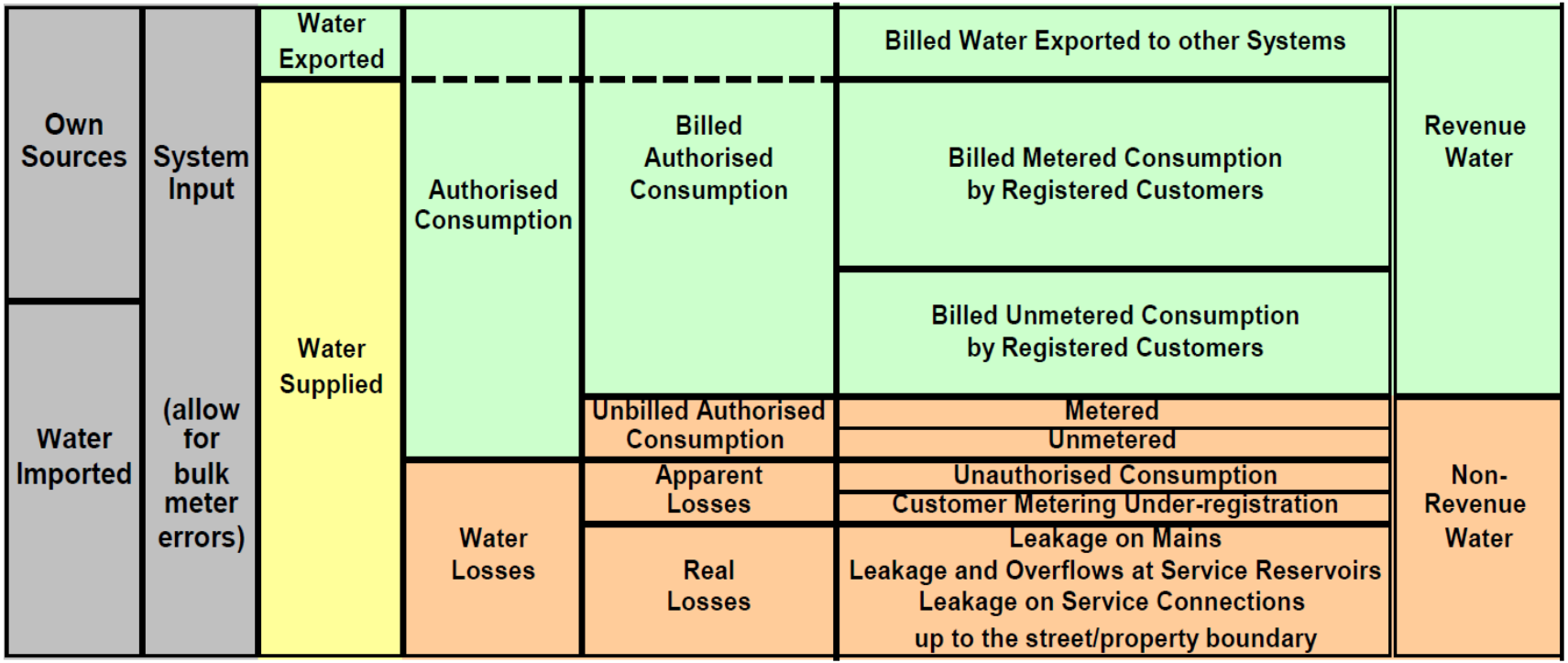
2010 Water Conservation Plan



Peak Water Use Target

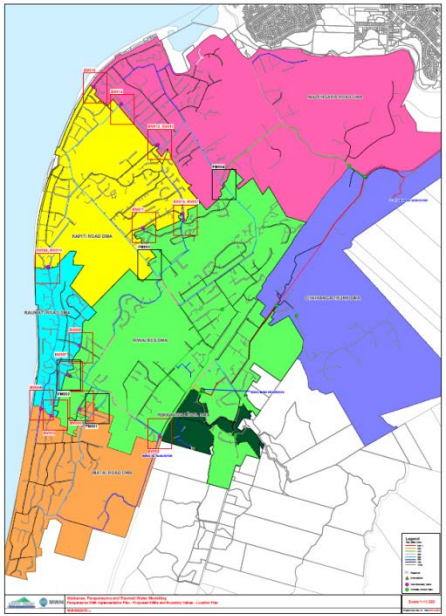
Water loss management

Figure 2.2: Annual Water Balance used in BenchlossNZ and CheckCalcsNZ

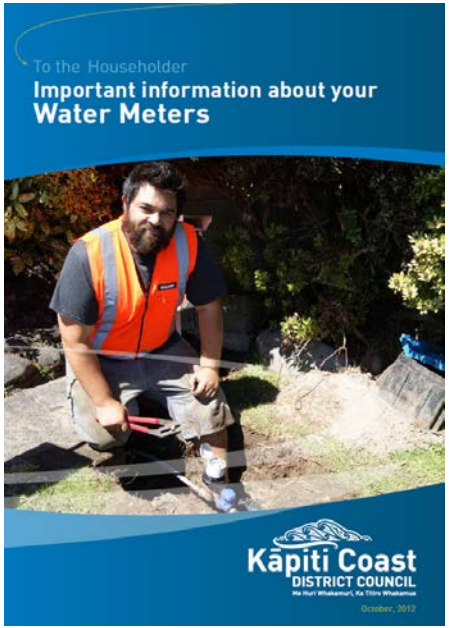


Tools in place

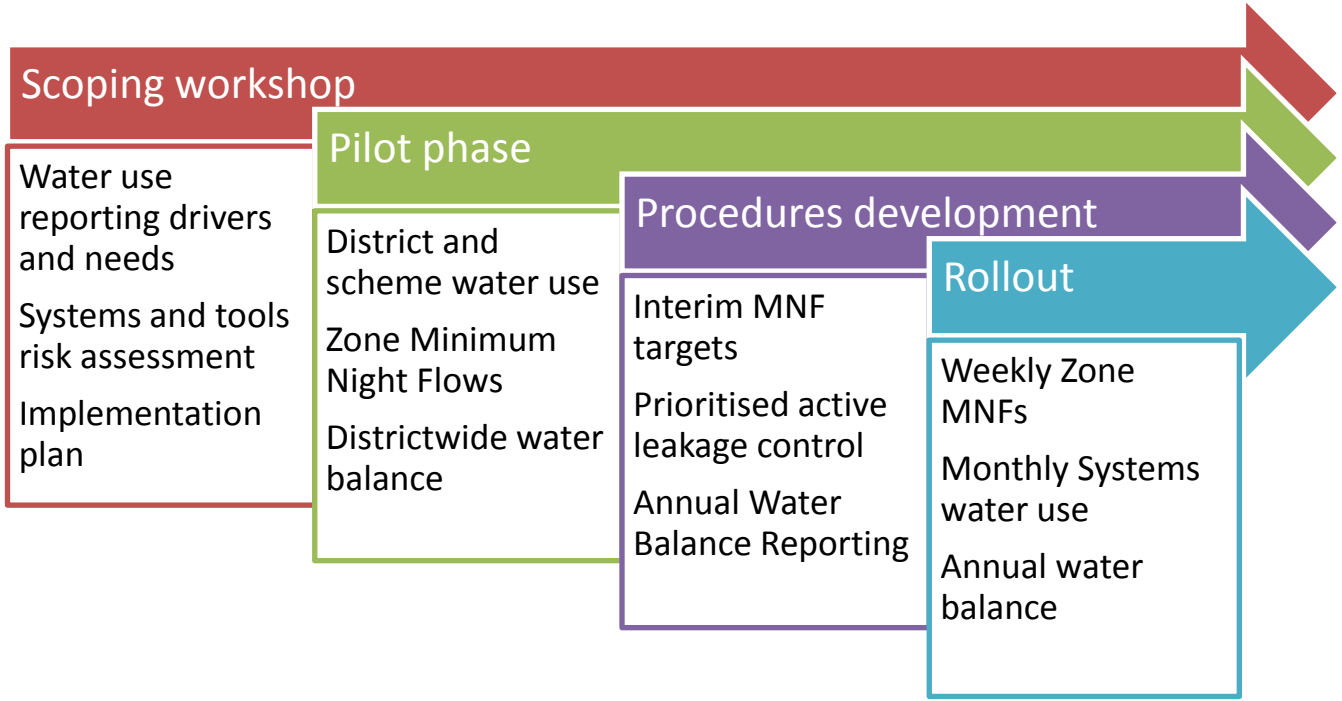
2010 District Meter Zones



2012-14 Consumer metering



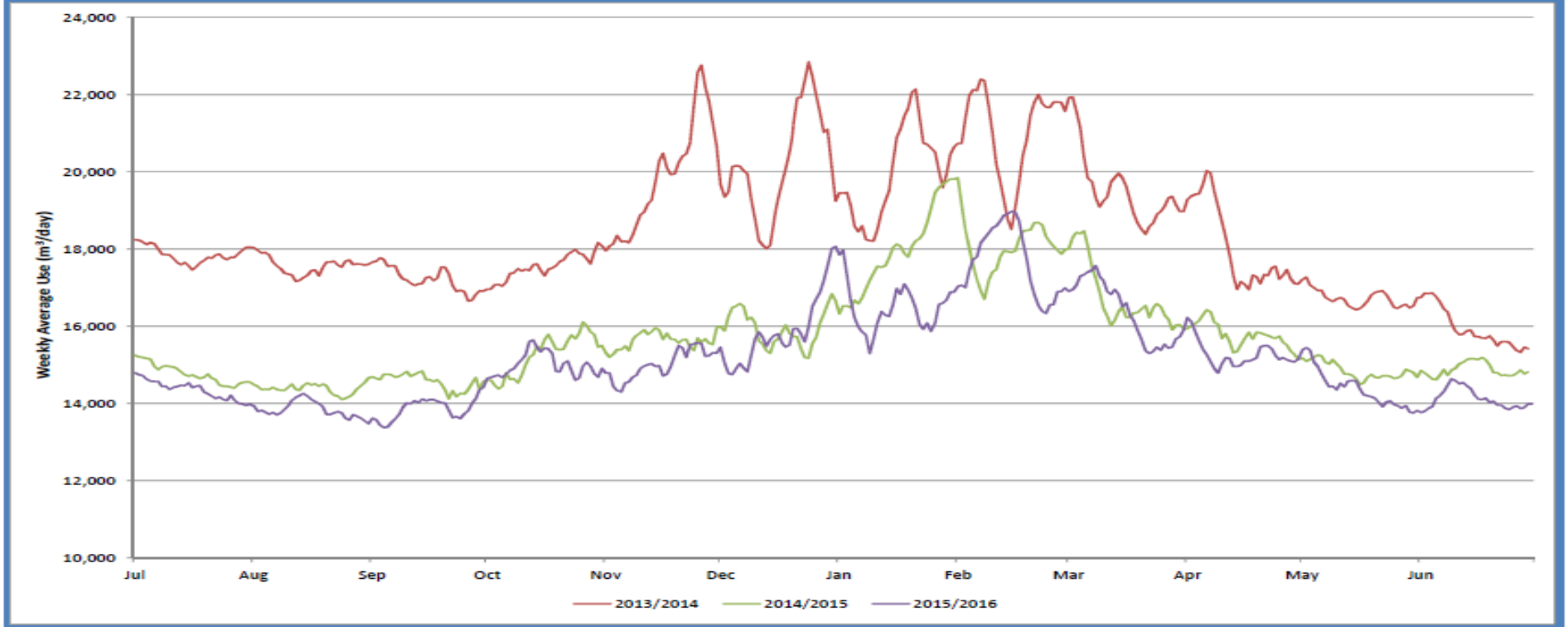
2013 Water Use Mgmt Study



District Water Use Report: District Total Weekly Average Use Year To Date 2015/2016

Water Use: Districtwide

Date Generated: 15 Sep 2017



Year To Date (01 Jul 2015 - 30 Jun 2016)

	Daily Total (m^3/day)		Population	Per Capita Gross Use (L/p/day)		Days >490 L/p/day	
	Average Day	Peak Day		Average Day	Peak Day		
2015/2016 Year To Date	15,169	19,617	46,147	329	425	0	0%
2014/2015	15,726	20,019	45,850	343	437	0	0%
2013/2014	18,438	25,394	45,553	405	557	25	7%

Notes:

District Total Use is the sum of water pumped from Otaki bores, Kakariki reservoir outflow, Riwai reservoir outflow, and Paekakariki reservoir outflow

Waikanae Network - Water Losses by MNF Method

Start Date 17/07/2017
End Date 23/07/2017

Financial Year 2017/2018

NOTE: This method is to be used to rank zones only. Water losses will be determined by the water balance method once reporting tools are developed.
Yellow cells indicate manually entered data

Zone	Population[3]	No. Service Connections[4]	Length of Mains[5]	No. Primary + Secondary Conections	Ave MNF	Estimated Customer Night Consumption	Estimated Losses				UARL	Snapshot ILI	UARL Notes	Zon Ran
			km		L/s	m3/hr	m3/hr	m3/day	L/pop/day	L/conn/day	m3/hr	-		
Kakariki (incl WTP Process Water)	2438	0	0	0	8.0	0.0	-	-	-	-	-	-		-
Kakariki (excl WTP Process Water)	2438	-1	-1	-1.0	4.7	0.0	17.1	392	161	-392351	-0.1	-311.1	Refer Note 2	#DIV
Tui High Level	111	0	0	0	0.0	0.0	0.0	0	0	#DIV/0!	0.0	#DIV/0!	Refer Note 2	#DIV
Hemi	2413	0	0	0	4.6	0.0	16.7	384	159	#DIV/0!	0.0	#DIV/0!	Refer Note 2	#DIV
Te Moana	3513	0	0	0	3.8	0.0	13.6	313	89	#DIV/0!	0.0	#DIV/0!	Refer Note 2	#DIV
Rauparaha	2862	0	0	0	3.0	0.0	10.7	245	86	#DIV/0!	0.0	#DIV/0!	Refer Note 2	#DIV
Peka Peka (refer Note 1)	178	0	0	0	0.4	0.0	1.4	33	186	#DIV/0!	0.0	#DIV/0!	Refer Note 2	#DIV
Waikanae Total (incl WTP Process Water)	11515	0	0	0.0	21.7	0.0	-	-	-	-	-	-	Refer Note 2	
Waikanae Total (excl WTP Process Water)	11515	-1	0	-1.0	18.2	0.0	65.4	1505	131	-1505139	0.0	-2604.8	Refer Note 2	

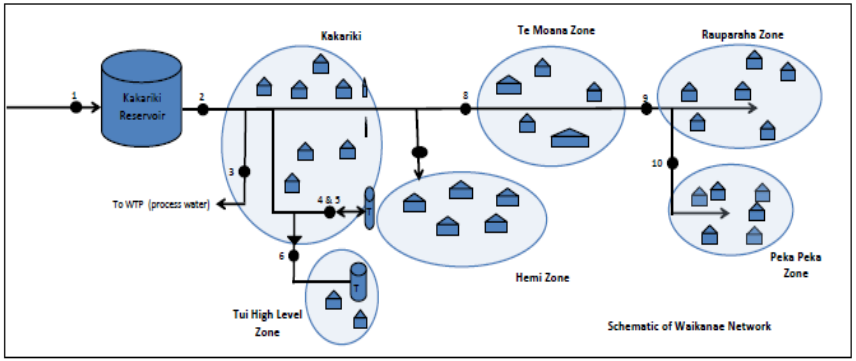
Parameters for Loss Estimate (MNF Method)

Allowance for genuine night time use	2.5	L/conn/hour
Hour to day factor	23	
Average Zone Night Pressure	70	m

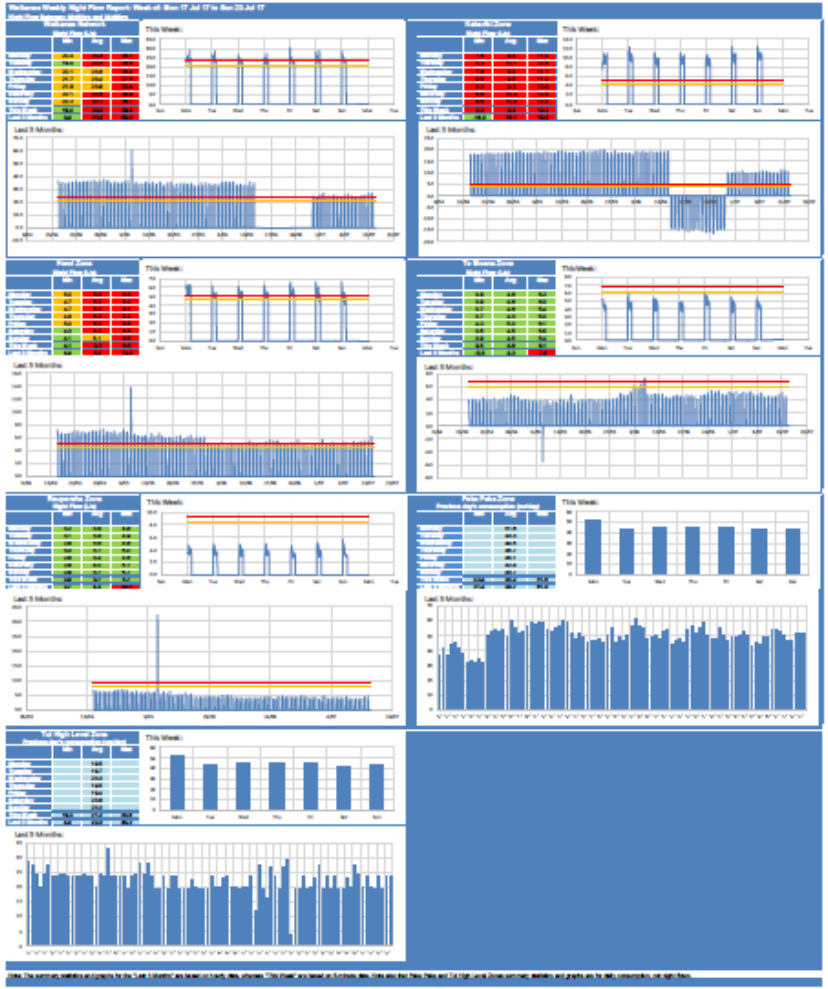
Diagram ID	SCADA Tag
1	2:Waikanae Treatment Plant – Waikanae Flow
2	2:Kakariki Reservoir – Flow Rate
3	3:WW_TW_ProcessWater_PT.PV
4	2:Tui Crescent Reservoir – Flow In Rate
5	2:Tui Crescent Reservoir – Flow Out Rate
6	2:Tui Crescent Pump Station – Flow Rate
7	2:Hemi St Water Meter – Flow Rate
8	2:Te Moana Water Meter – Flow Rate
9	2:Rauparaha Water Meter – Flow Rate
10	2:Peka Peka Water Meter – Flow Rate

Notes
1) Peka Peka is a restricted supply
2) UARL and Snapshot ILI may be unreliable for small areas (ie, if 20xLm+Nc<3000)
3) 2013 Population estimates based on intersection of 2013 Census Usual Resident Population by meshblock, KCDC Water Zones and Building Footprints [Source: Serge Peters, 18 May 2016].
4) No. primary connections (Primary + Primary MP + Primary PH). Used to calculate UARL and report losses on per connection basis. [Source: Infonet, Serge Peeters 18 May 2016]
5) Length of Mains is total length of all Council water pipes (excluding raw water mains, private pipes and drains) [Source: Infonet, Serge Peters 18 Feb 2016]
6) No. connections is standalone primary meters plus secondary connections (ie check meters) [Source: Infonet, Serge Peters 18 may 2016]
7) The flow rate for the Rangihiroa depot hydrant is not recorded in SCADA and so this is not accounted for in the MNF calculations

Kakariki Zone = 2 - 4 + 5 - 6 - 7 - 8
Tui High Level Zone = 6
Hemi Zone = 7
Te Moana Zone = 8 - 9
Rauparaha Zone = 9 - 10
Peka Peka Zone = 10

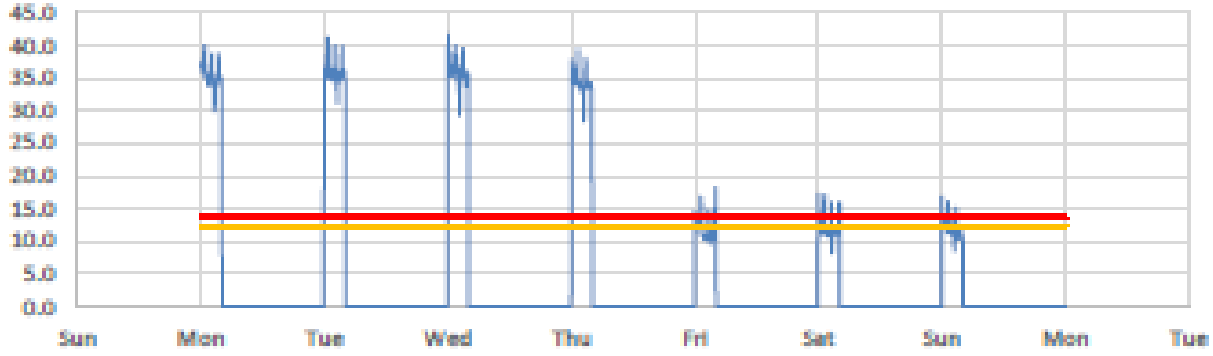


Data Powered by:
wateroutlook

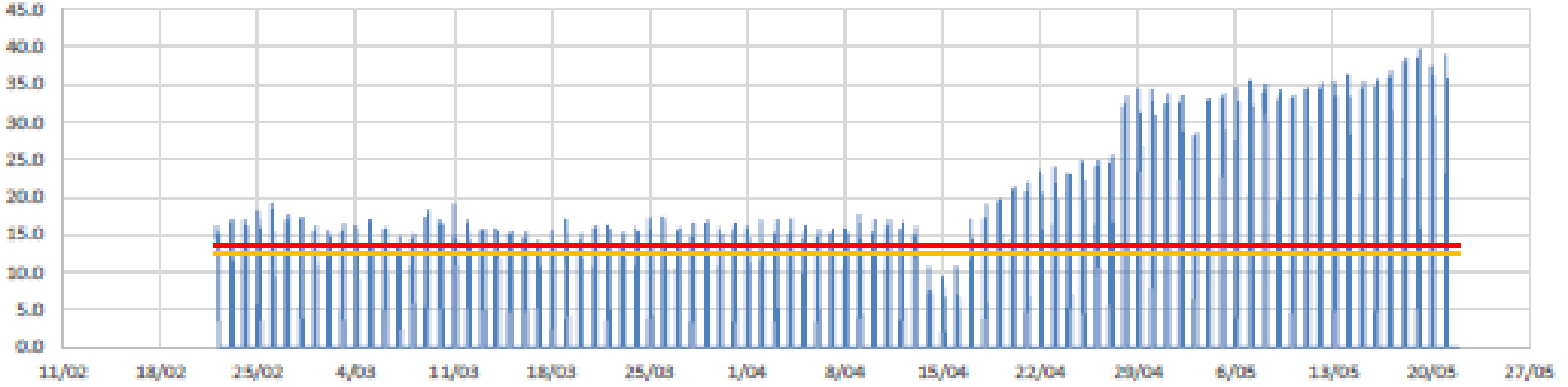


Riwai Zone Night Flow (L/s)	Min	Avg	Max
Monday	29.9	35.5	40.1
Tuesday	31.2	36.2	41.3
Wednesday	29.3	36.1	41.7
Thursday	26.4	34.5	39.4
Friday	9.8	12.1	16.2
Saturday	8.2	12.4	17.3
Sunday	8.5	12.4	16.8
This Week	8.2	25.6	41.7
Last 3 Months	5.7	19.8	39.7

This Week:

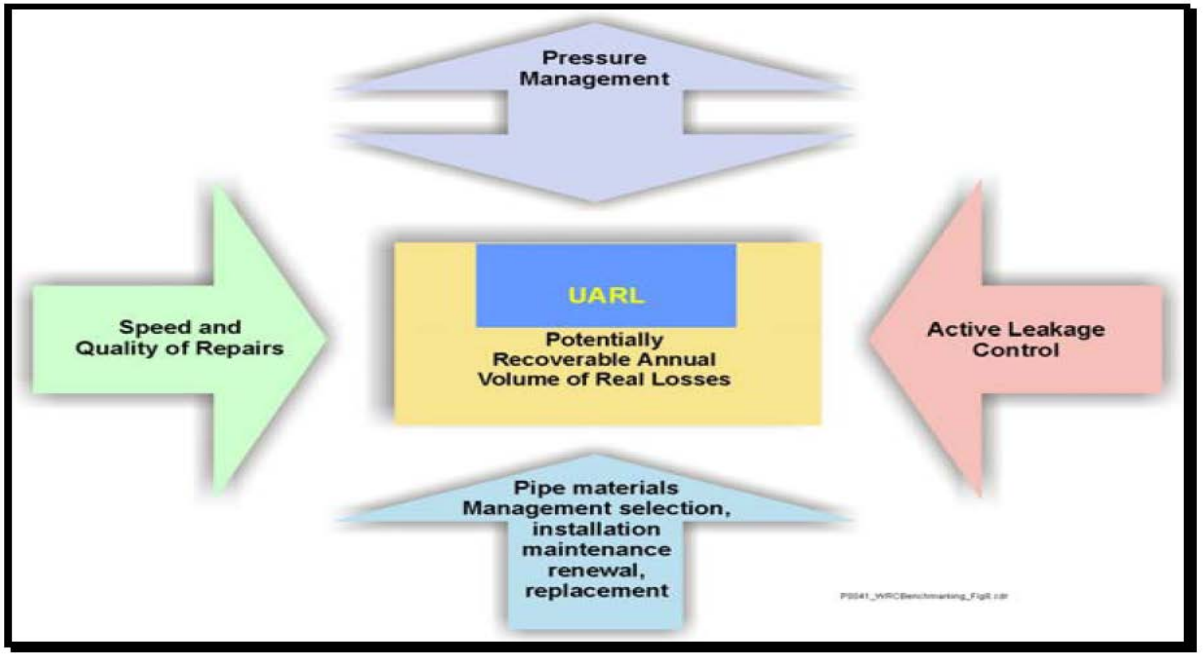


Last 3 Months:



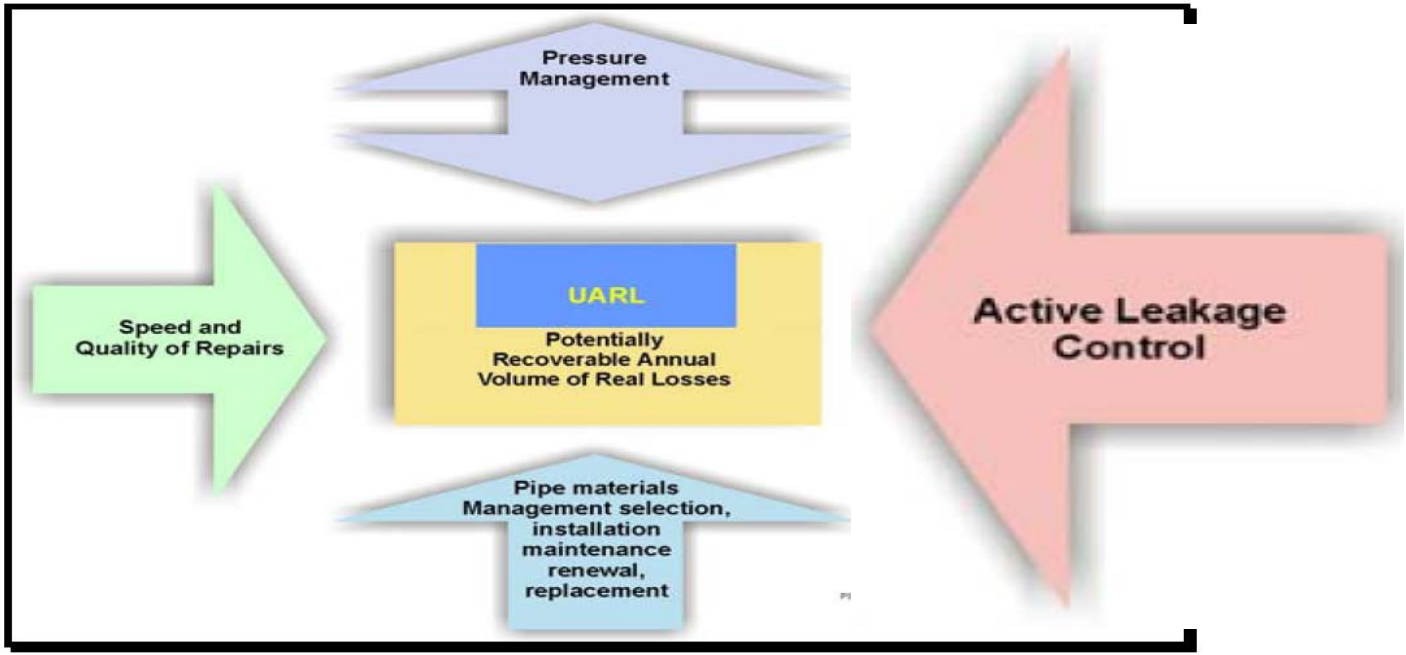
Water loss management

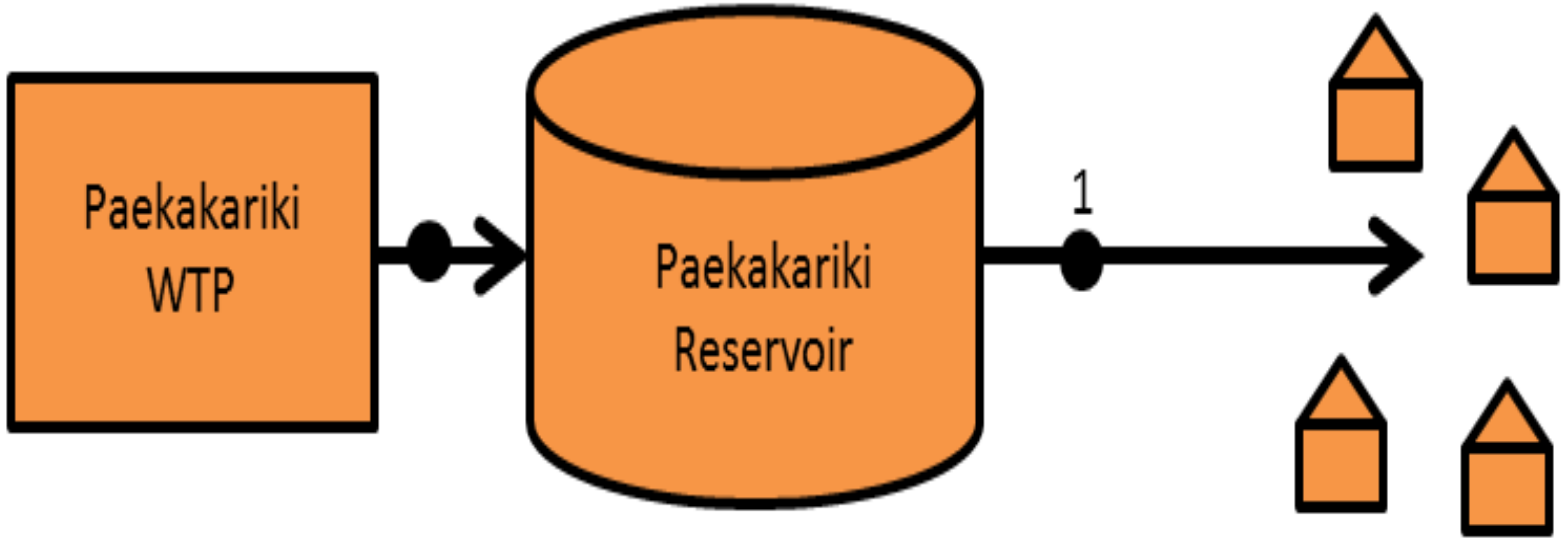
Figure 2.4: The four complementary leakage management activities



Water loss management

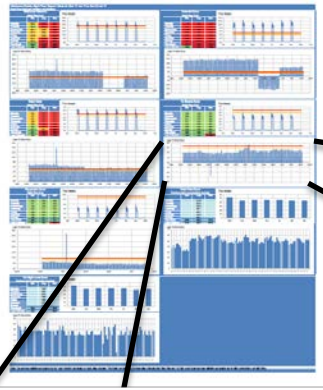
Figure 2.4: The four complementary leakage management activities





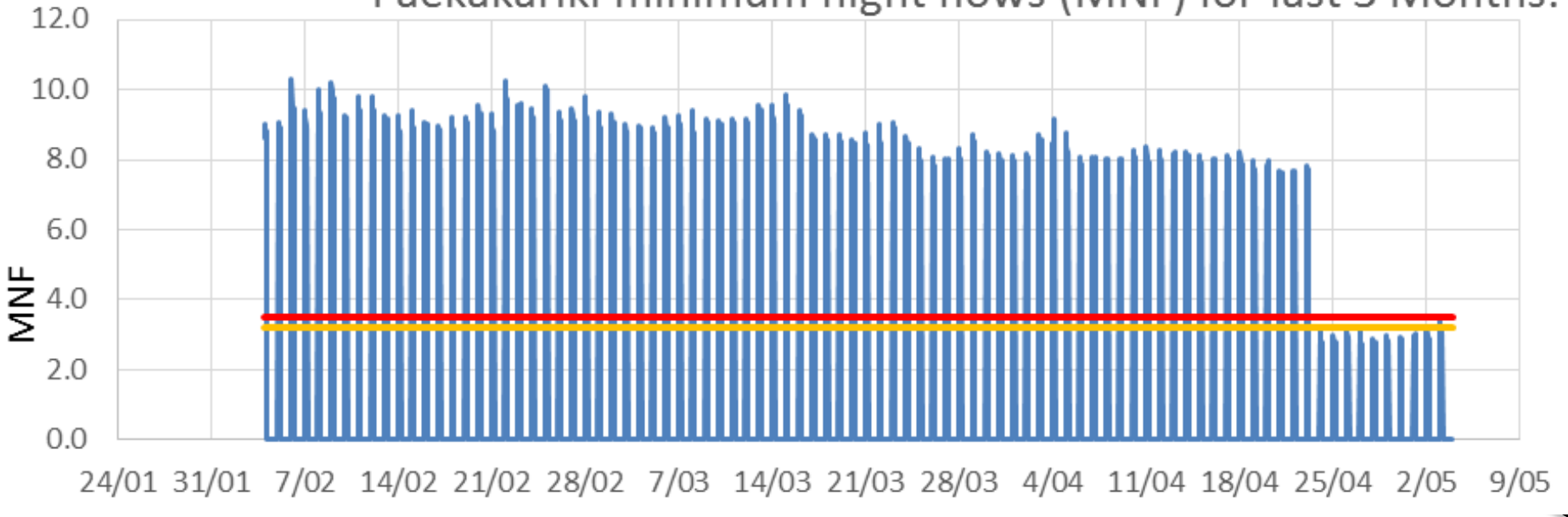
Schematic of Paekakariki Scheme

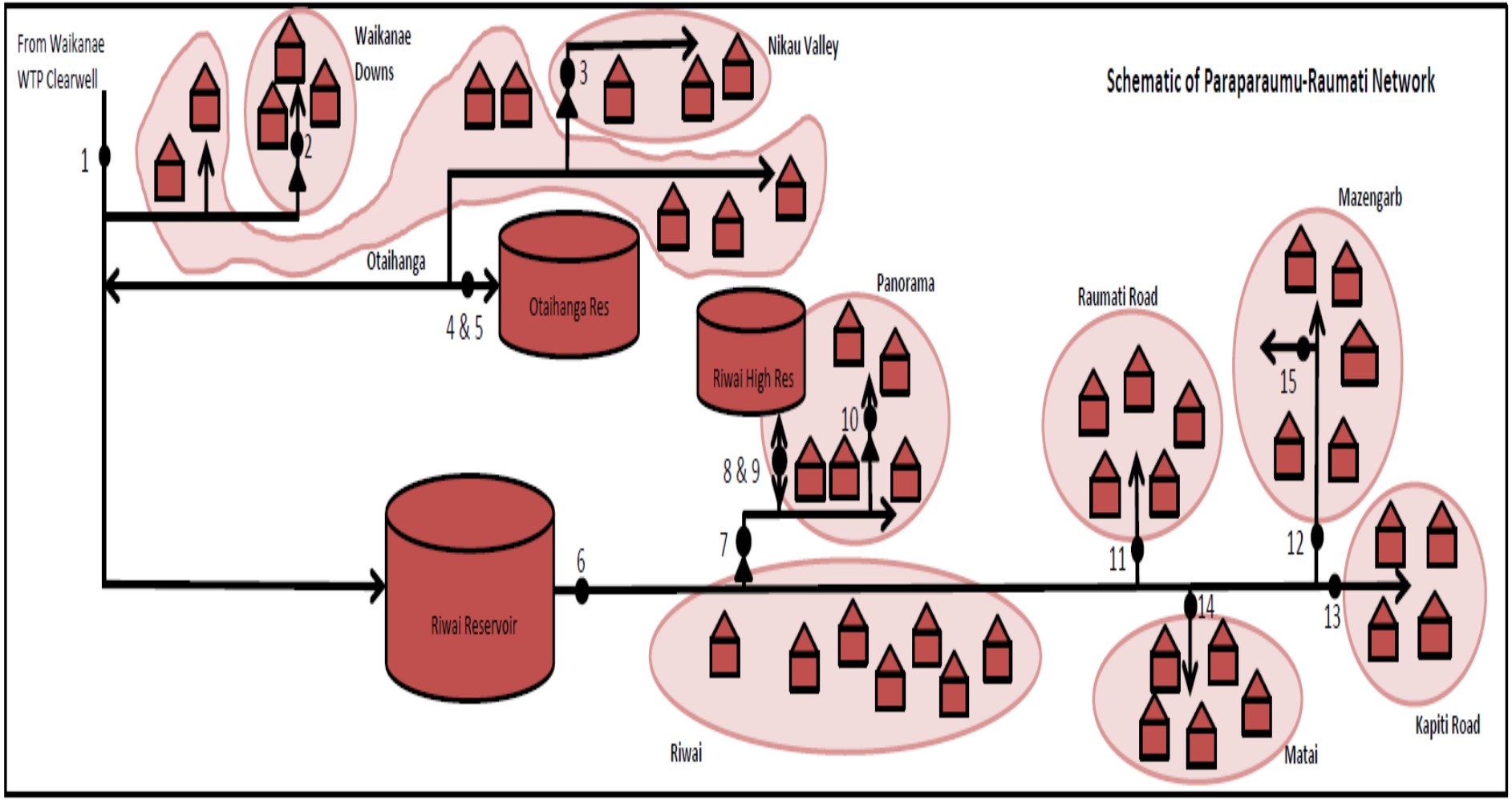

1,200
1,000
800
600
400
200
0
Weekly Average Use (m³/day)
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2013/2014
2014/2015
2015/2016

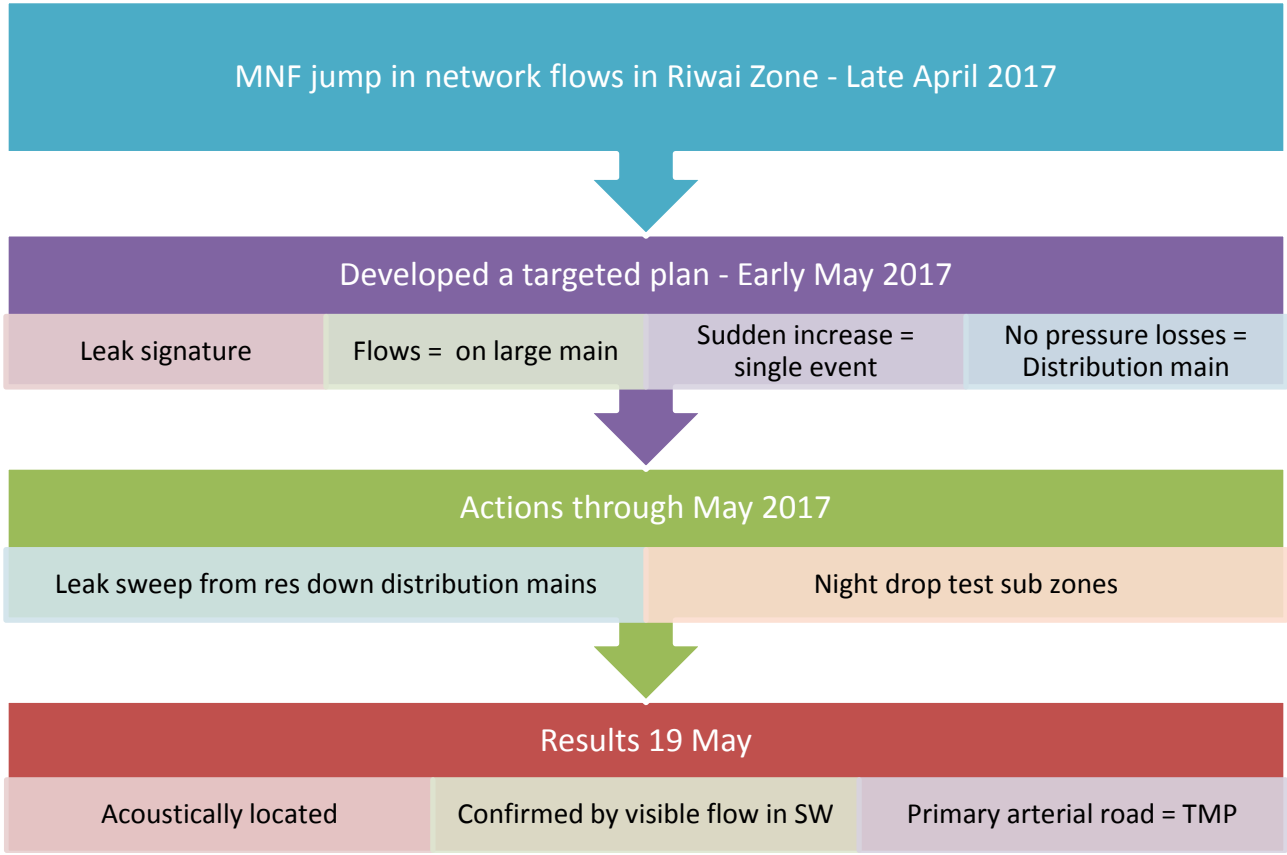


432 m3/day
or around 5 l/s

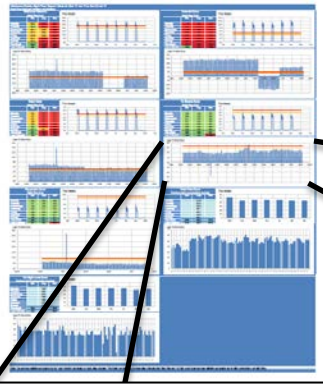
Paekakariki minimum night flows (MNF) for last 3 Months:




From Waikanae WTP Clearwell
Waikanae Downs
Nikau Valley
Schematic of Paraparaumu-Raumati Network
1
2
3
Otaihanga
4 & 5
Otaihanga Res
Riwai High Res
Panorama
Raumati Road
Mazengarb
10
15
8 & 9
7
6
11
12
13
14
Riwai Reservoir
Riwai
Matai
Kapiti Road


MNF jump in network flows in Riwai Zone - Late April 2017
Developed a targeted plan - Early May 2017
Leak signature
Flows = on large main
Sudden increase = single event
No pressure losses = Distribution main
Actions through May 2017
Leak sweep from res down distribution mains
Night drop test sub zones
Results 19 May
Acoustically located
Confirmed by visible flow in SW
Primary arterial road = TMP

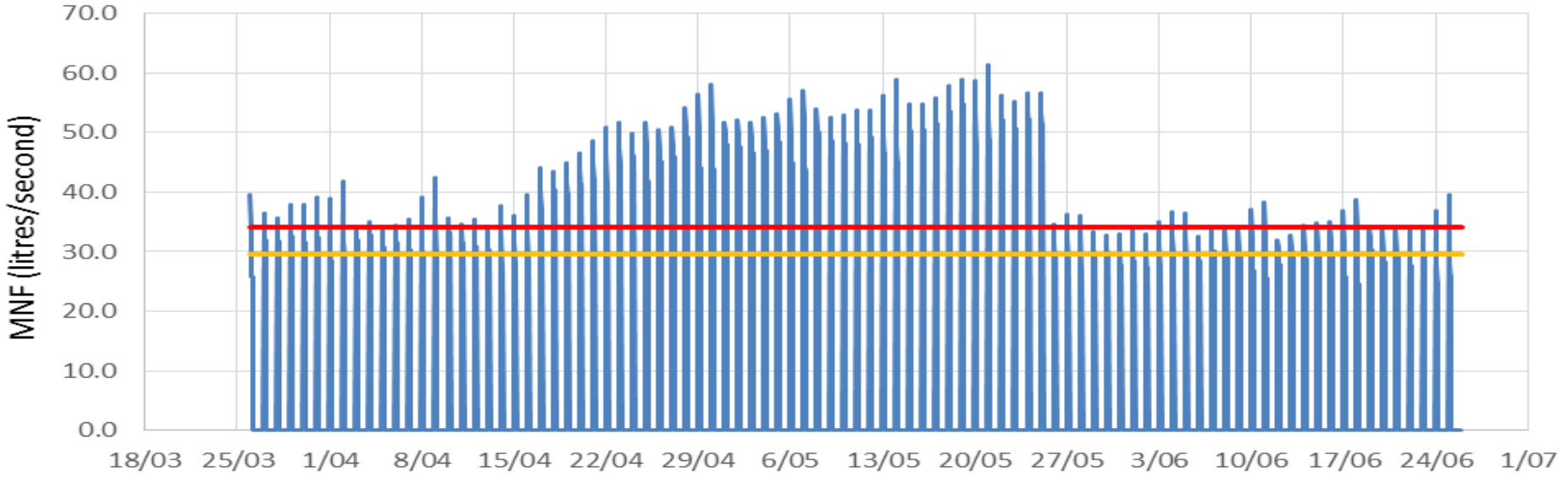

Kapiti Road
Agrahata Road



1,900 m3/day

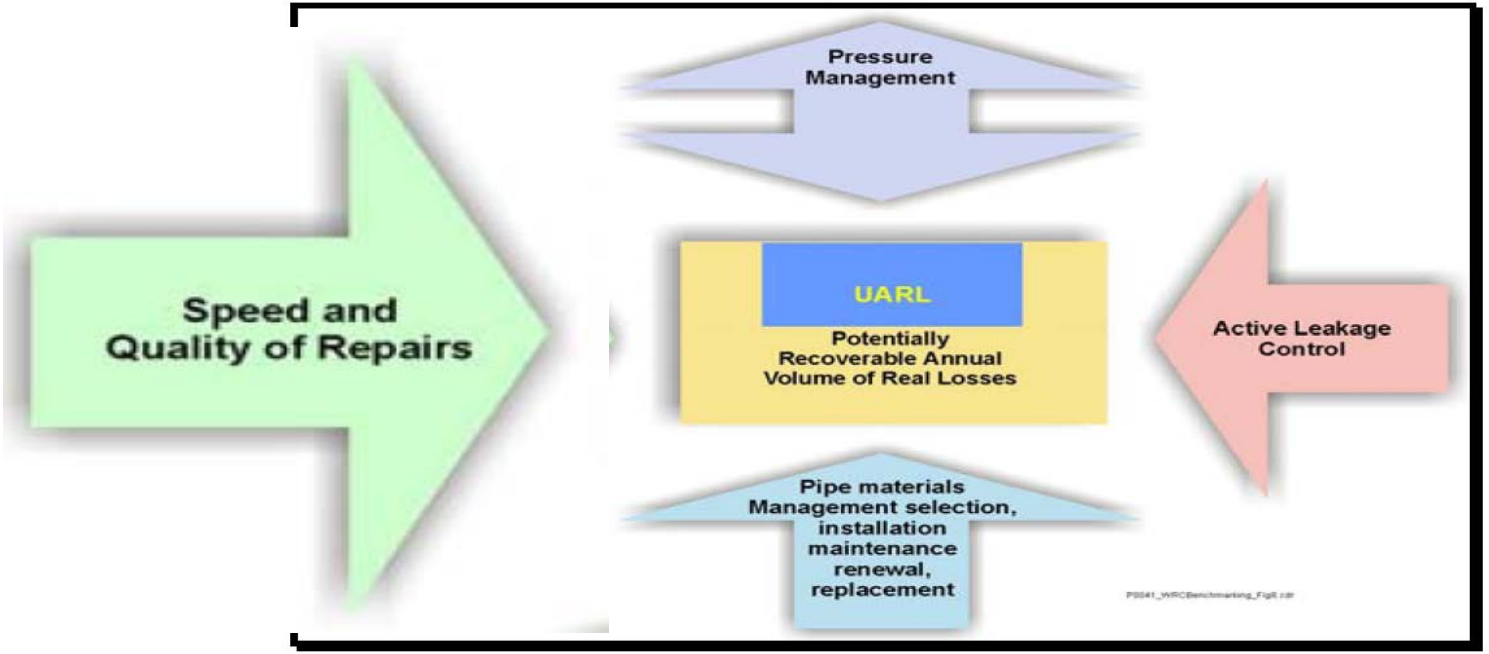
or around 21 l/s

Riwai Zone minimum night flows (MNF) last 3 months:



Water loss management

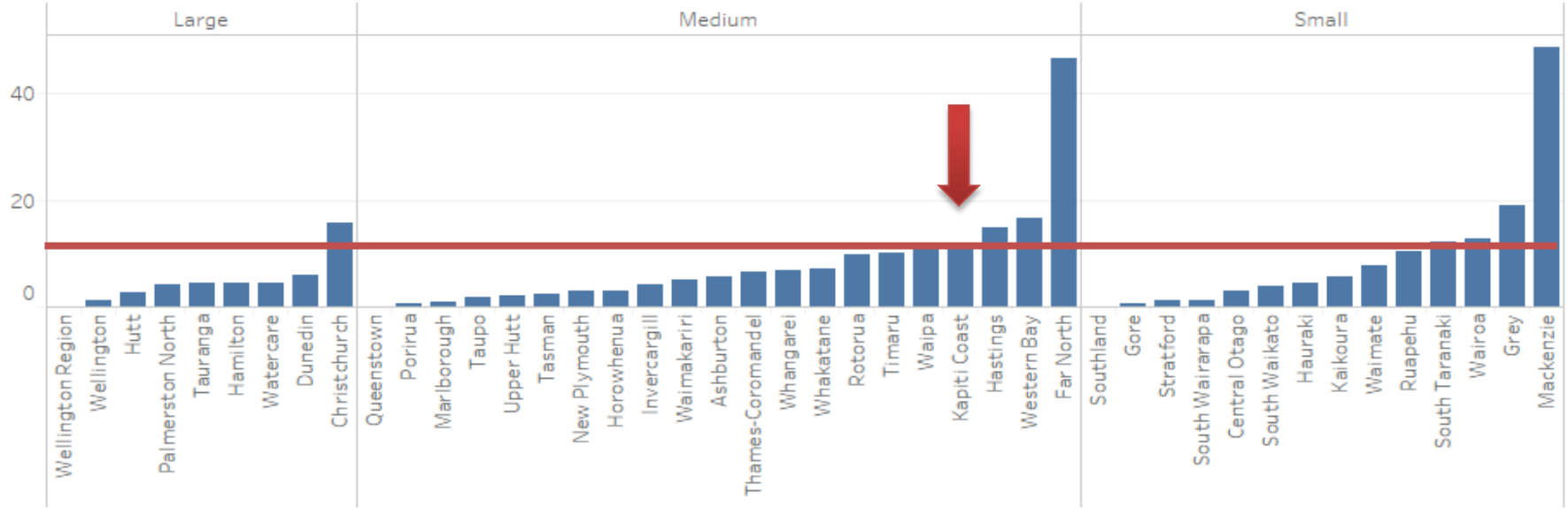
Figure 2.4: The four complementary leakage management activities



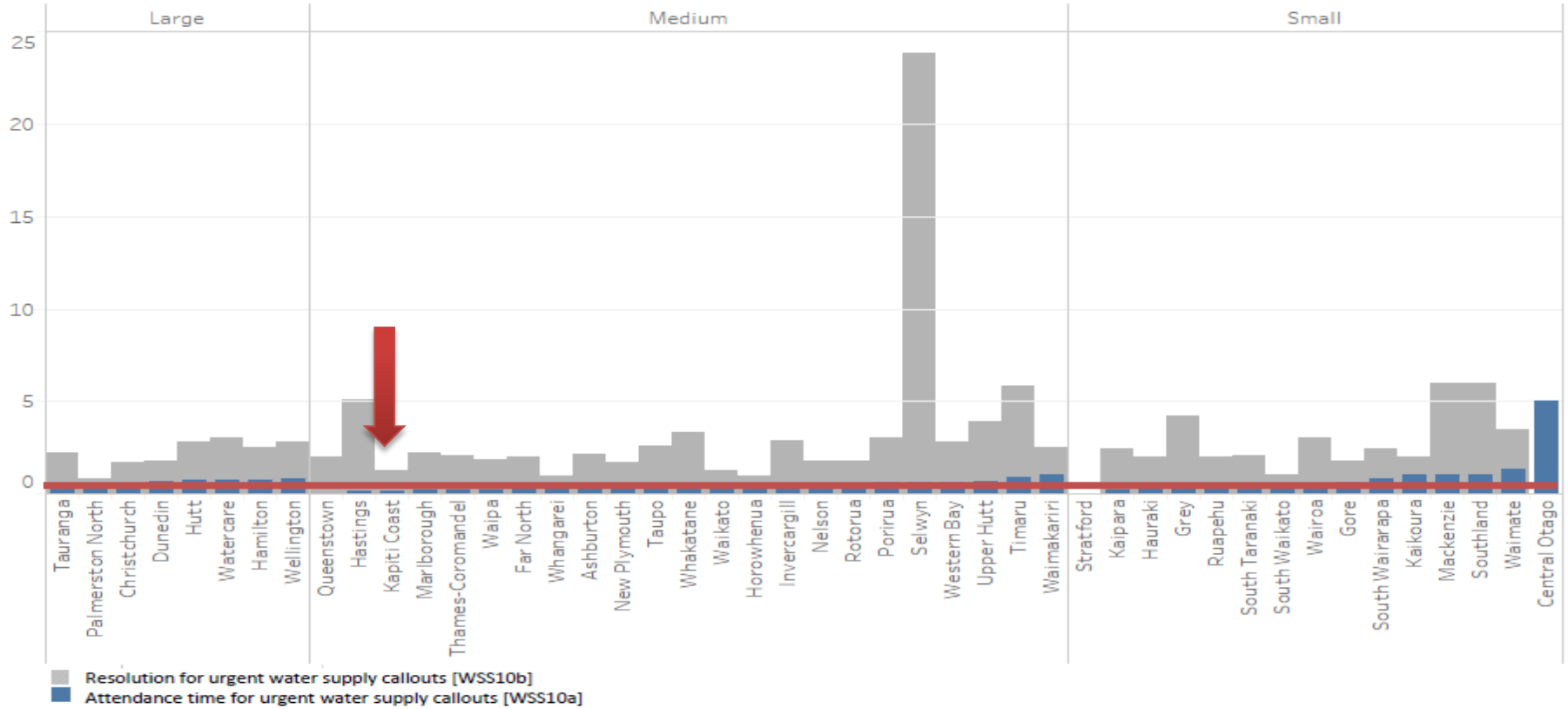

760
Repairs
per year

Water Interruptions

- Unplanned interruptions per 1000 properties

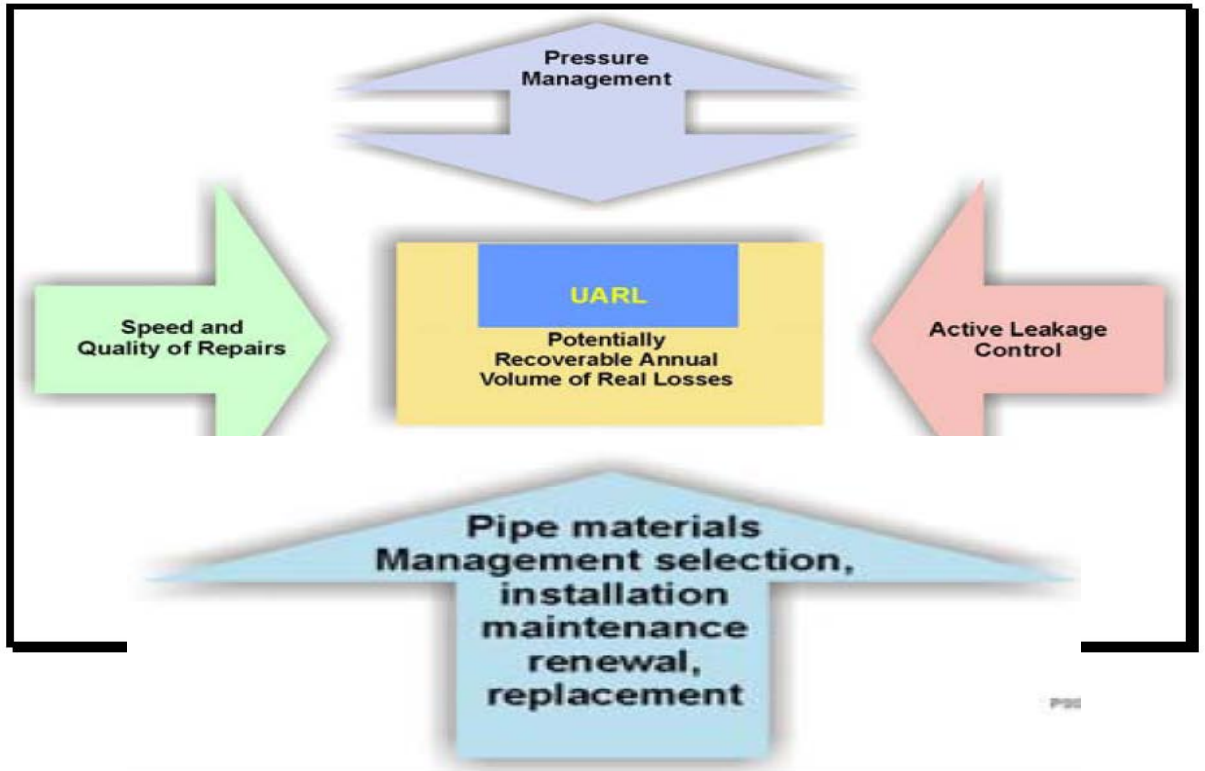


Water Supply Response Time



Water loss management

Figure 2.4: The four complementary leakage management activities



Renewing Old pipes

2015 Service pipe investigation

15/16

- Continue reactive interventions and active leak detection
- Improve data collection and monitoring of lateral interventions
- Consult with other Councils

16/17

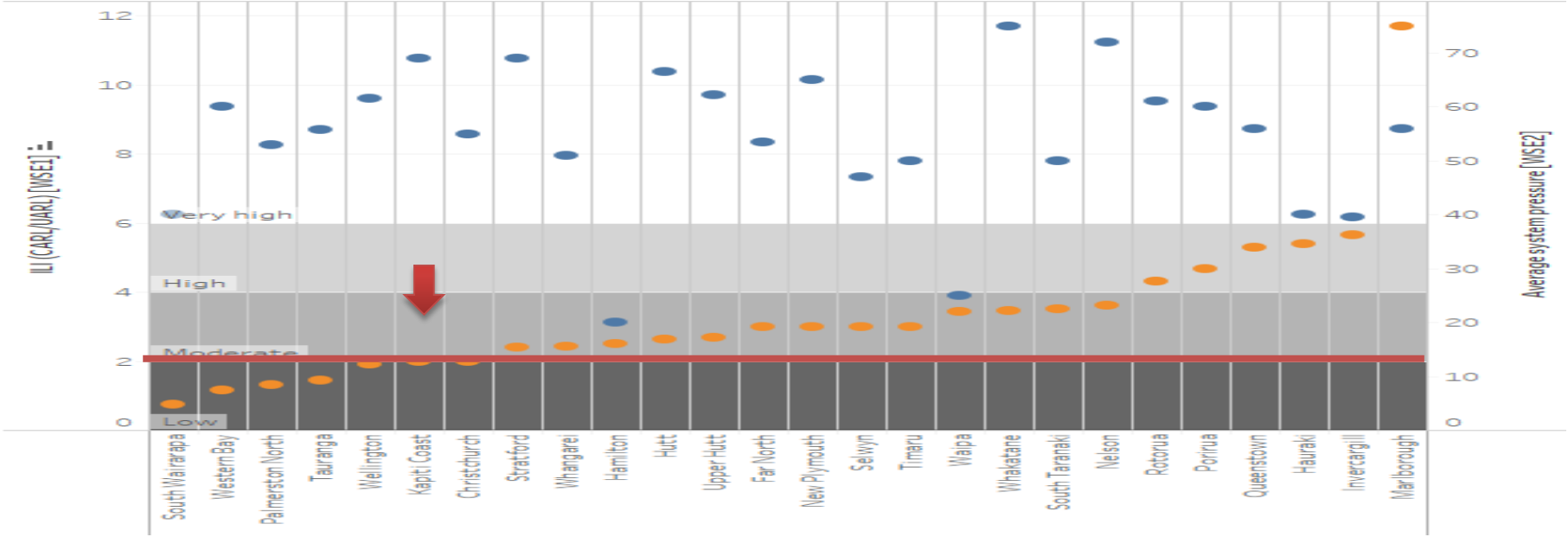
- Continue reactive lateral interventions and active leak detection
- Develop criteria for reactive lateral replacement
- Carry out trial lateral replacements
- Reassess priority zones following data collection improvements

17/18

- Prepare cost estimates for lateral renewal options
- Develop strategy for laterals renewals in conjunction with mains renewals programme

2015/16 Water Network Performance

- Infrastructure leakage index and average system pressure

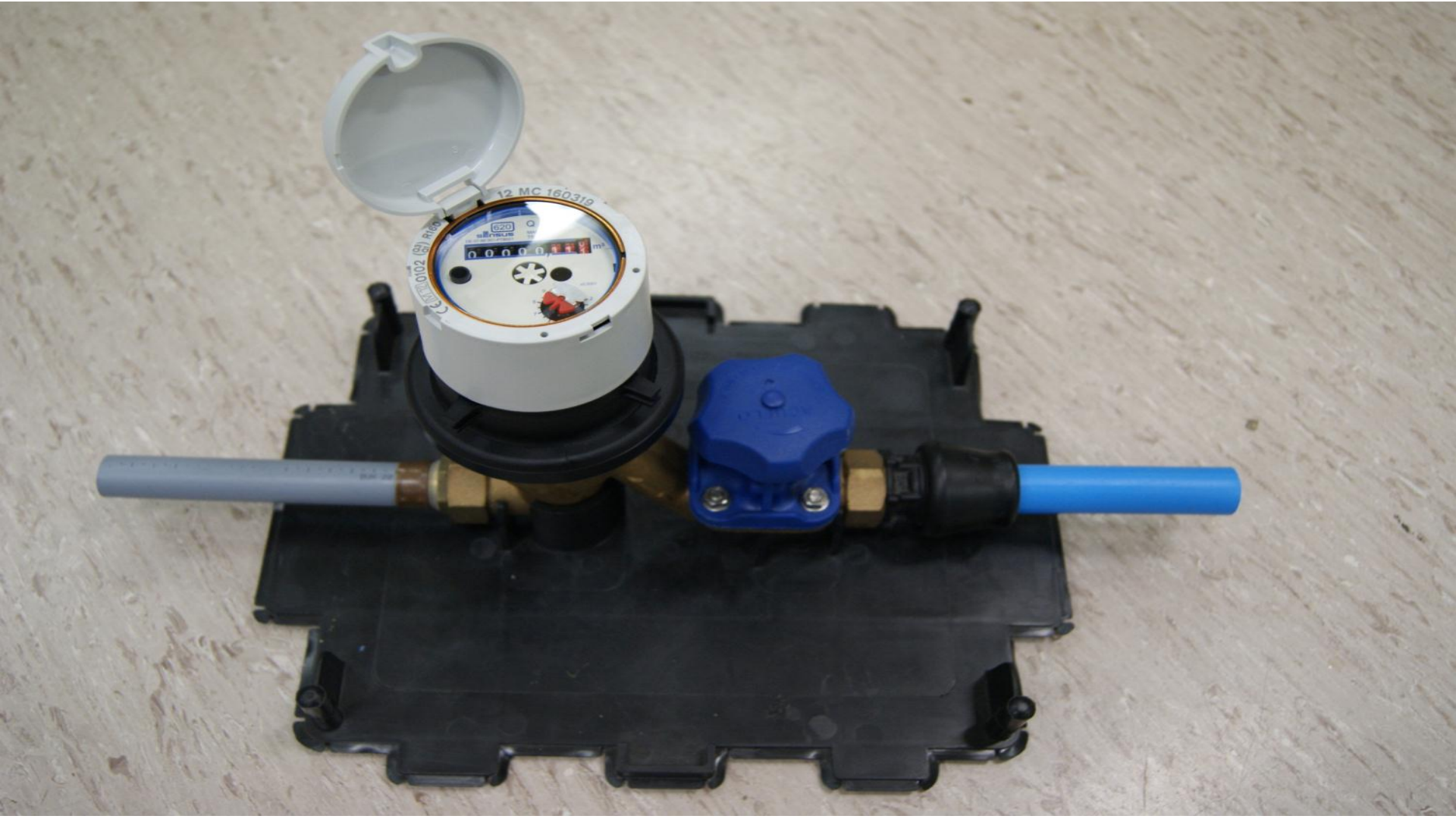


READING YOUR METER

Kāpiti Coast DISTRICT COUNCIL

0:05 / 1:06

Save water, save



First Trial Readings – April 2014

Understanding water use and $$$

BELOW IS THE AMOUNT OF WATER USED AT YOUR PROPERTY DURING THE FIRST TRIAL READ PERIOD.

LOCATION	111 Renown Road, Raumati South
VALUATION NUMBER	1528221700
METER ID	13MC15161581

ACTUAL READINGS

No. of Days	Open Read 6/01/14	Close Read 17/02/14	Units Used (m³)	Daily Average Use (litres)
42	100	125	25	

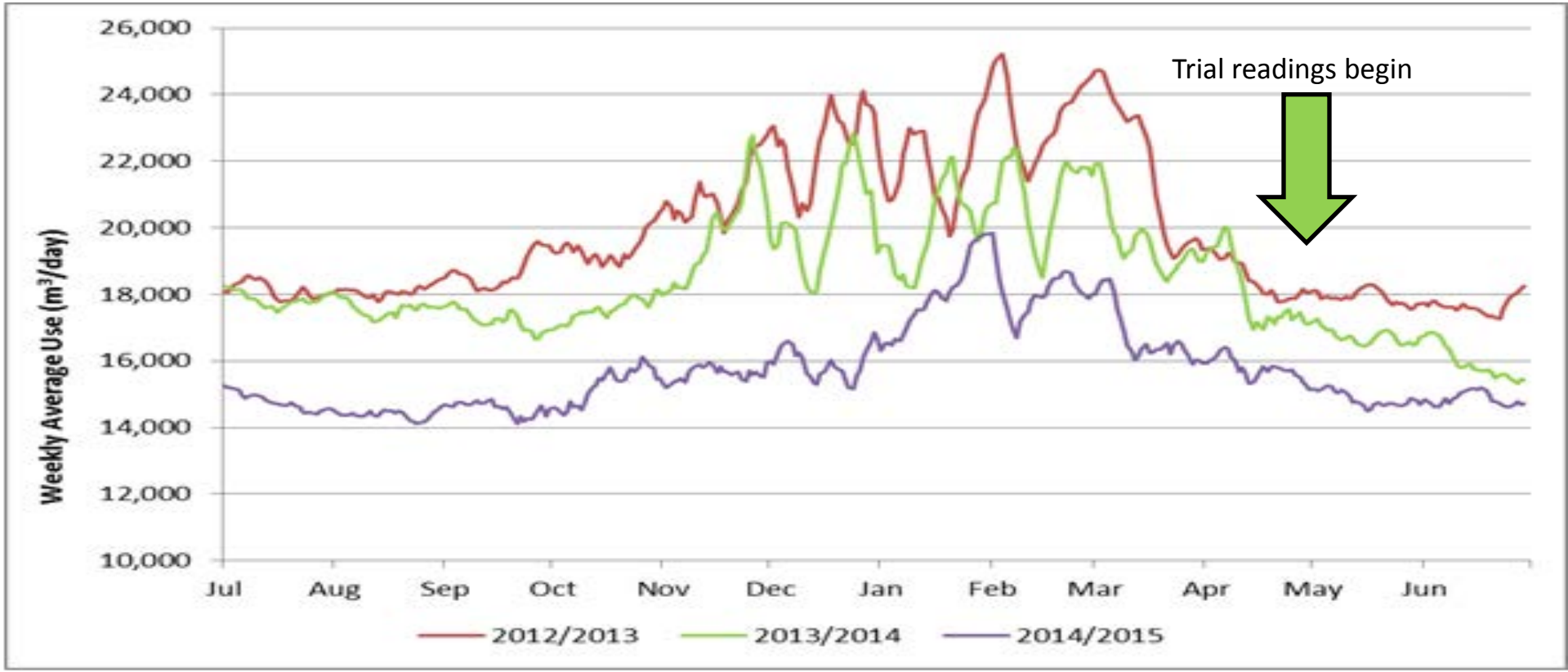
ESTIMATED QUARTERLY CHARGE BASED ON YOUR TRIAL READING

Volumetric Charges	Fixed Charges	Total Charges
$54.11	$57.95	$112.05 (incl gst)*

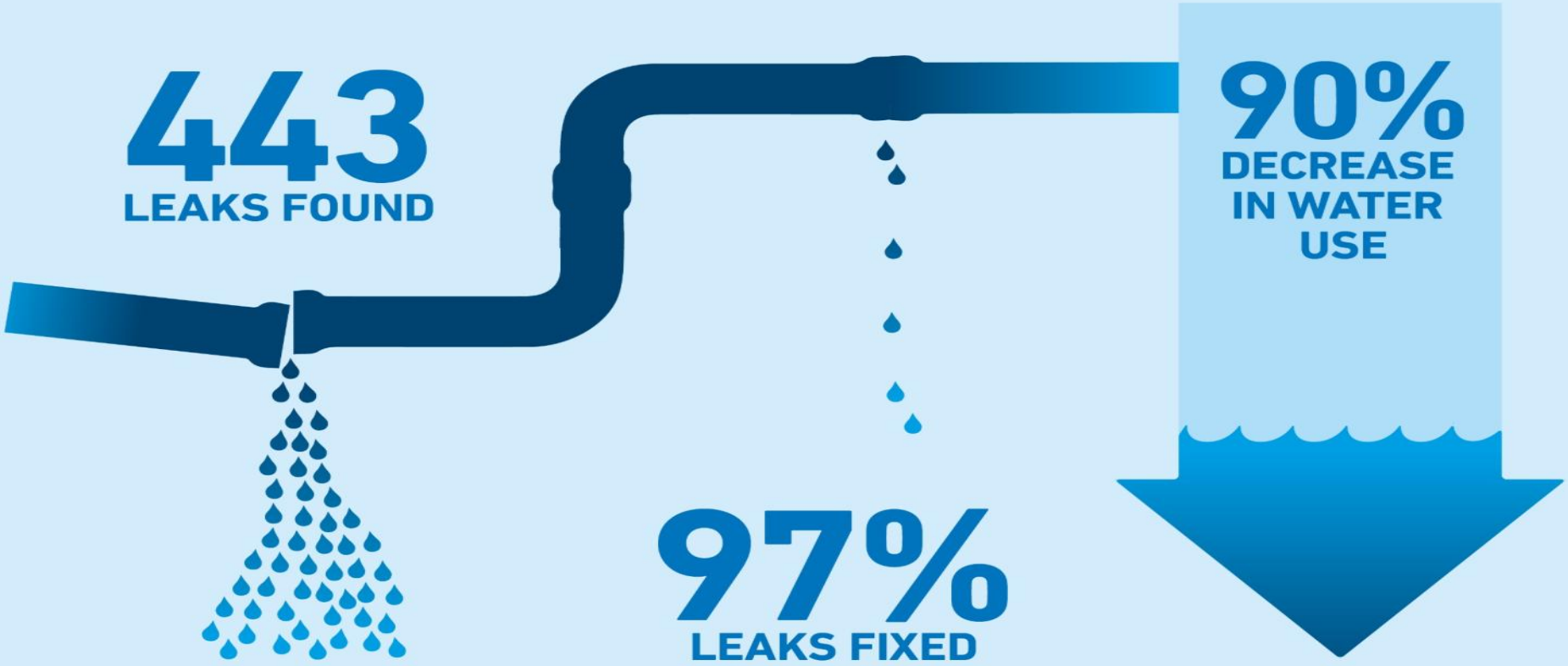
*Note. This estimate is based on a fixed charge of $188.50 (incl gst) per year plus a volumetric charge of $0.95 (incl gst) per cubic metre of water used. The final pricing structure will be approved by Council on 26 June 2014 as part of the 2014/15 Annual Plan process.

This reading is for information only. This is not an invoice and no money is due.

2014/15 Water Use



WATER SAVED THROUGH FIXING LEAKS



REDUCED CONSUMPTION FOR HIGH WATER USERS

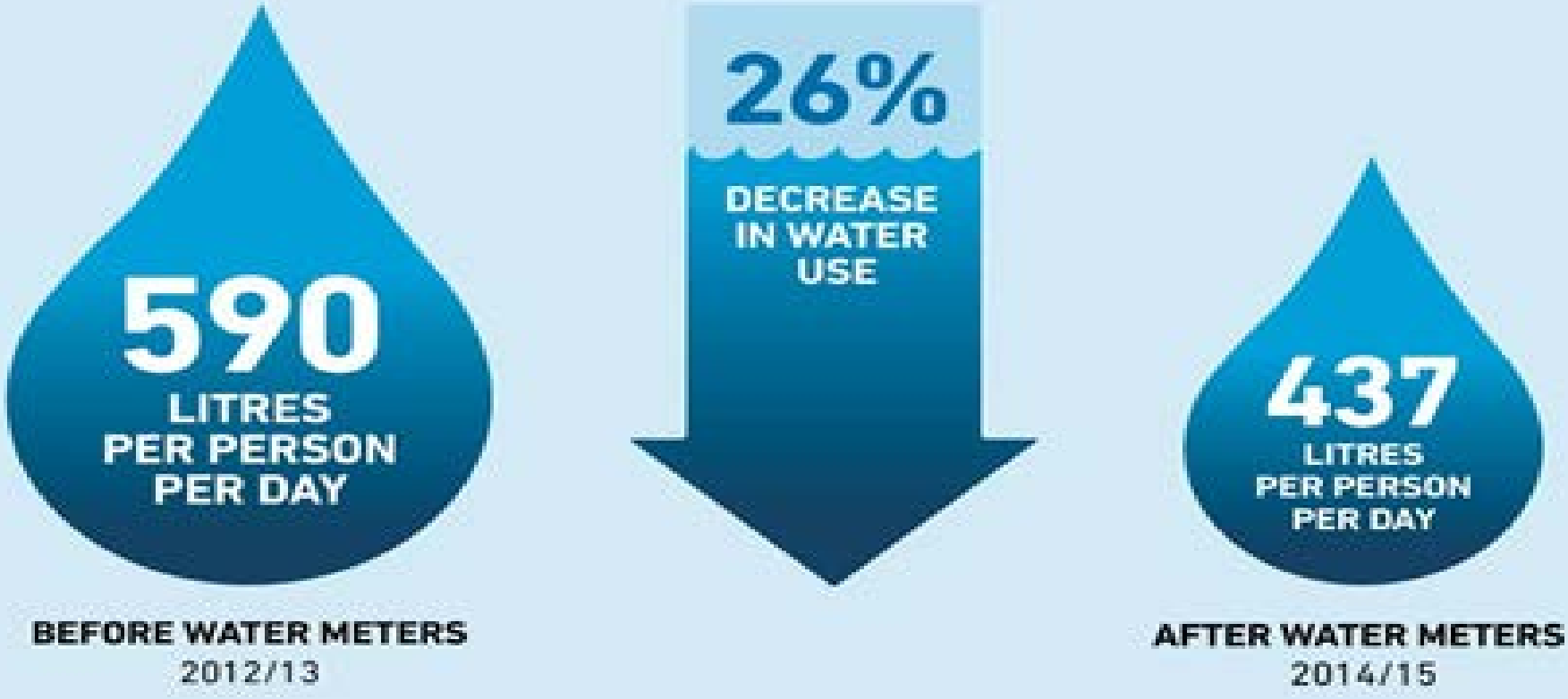
670 PROPERTIES = **2000+L** WATER USED PER DAY

AS IDENTIFIED VIA
TRIAL METER READINGS

70%
DECREASE IN WATER USE

AFTER FIXING LEAKS AND
CHANGING WATER USE HABITS

WATER USE REDUCTION ACROSS THE DISTRICT

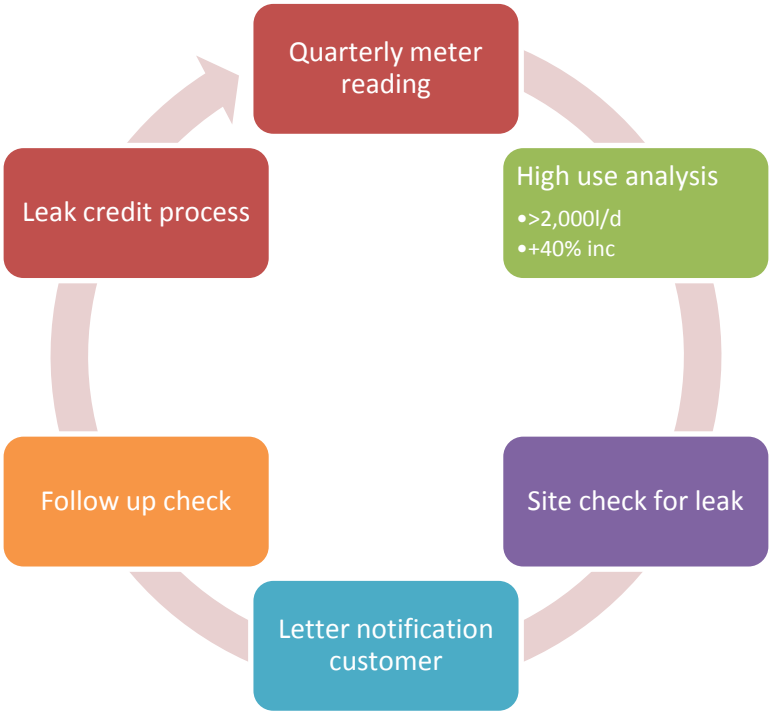


BEFORE WATER METERS
2012/13

AFTER WATER METERS
2014/15


DATACO

High water use monitoring



High water use support

Green Gardener

Water Use Advisor

Eco Design Advisor

Private Water Leak Credit

- Credit for water lost to leak
- From private pipes
- Repairs made
- Based on use assessment
- Over 900 applications

Leak repair directory

Water use information

Instructional Videos

Council property water use

Parks & Recreation: Mixed

1528239400

92 Matai Road, Paraparaumu

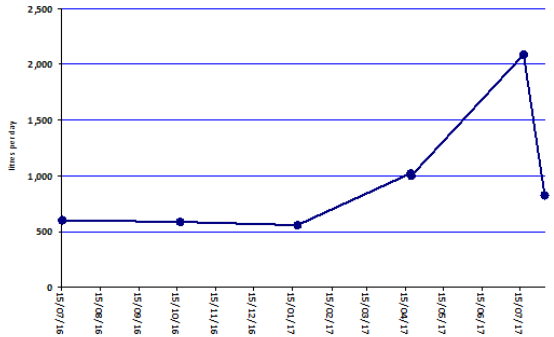
192 Matai Road, Reserve

13MC180905

Primary

WR221612

KWSN007040



Meter Serial	Open Date	Close Date	Days	Open Read	Close Read	Consumption	Daily (litres)	Yearly (m^3)	Unit Daily (litres)
13MC180905	15/04/2016	15/07/2016	91	629	684	55	*604*	221	
13MC180905	15/07/2016	17/10/2016	94	684	739	55	*585*	214	
13MC180905	17/10/2016	18/01/2017	93	739	791	52	*559*	204	
13MC180905	18/01/2017	18/04/2017	90	791	883	92	*1,022*	373	
13MC180905	18/04/2017	19/04/2017	1	883	884	1	*1,000*	365	
13MC180905	19/04/2017	17/07/2017	89	884	1,070	186	*2,090*	763	
13MC180905	17/07/2017	3/08/2017	17	1,070	1,084	14	*824*	301	

Peak Water Use Target

TARGET

In Summary

- We all have a part to play both Public / Private
- Its been a 3 year improvement journey
- What gets measured gets done
- It’s a never ending process
- Our next challenge is wastewater network

Thank you

Kāpiti Coast
DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua