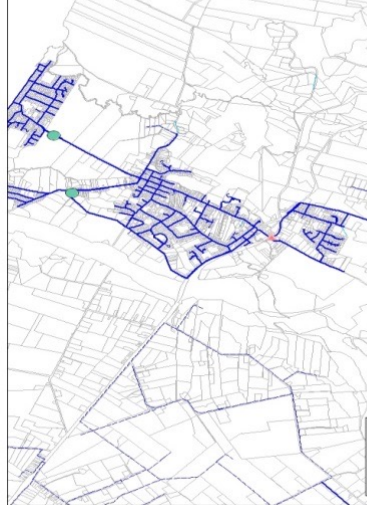


Keeping water in the pipes

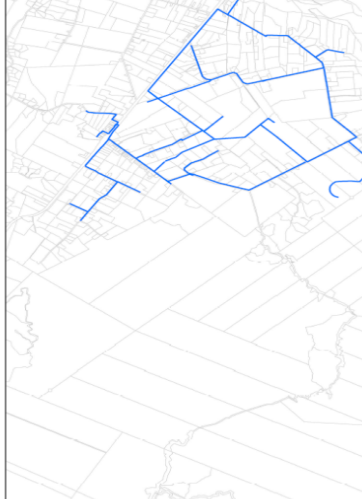
We all have a part to play

Public Water Supplies

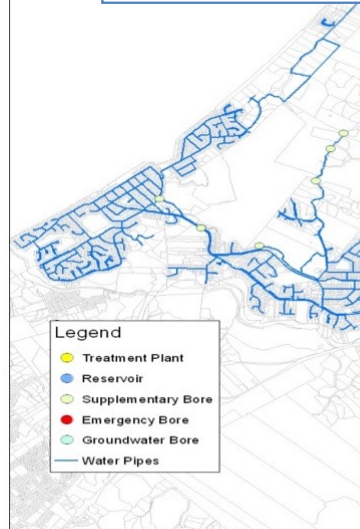
Otaki / Waitohu
Scheme 5,883 people



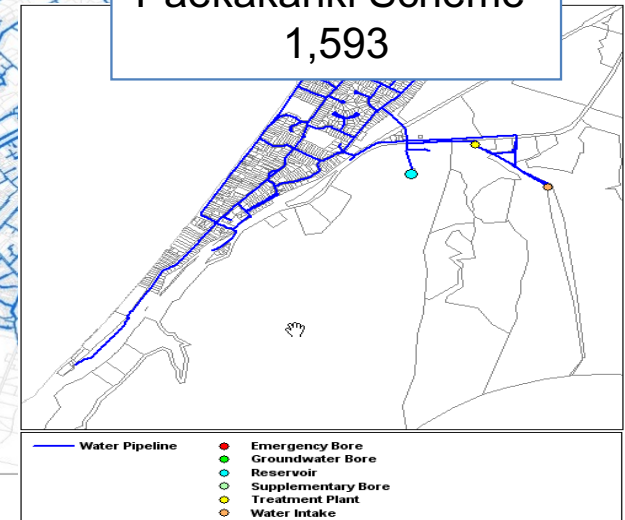
Hautere / Te Horo
Scheme 803 units



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

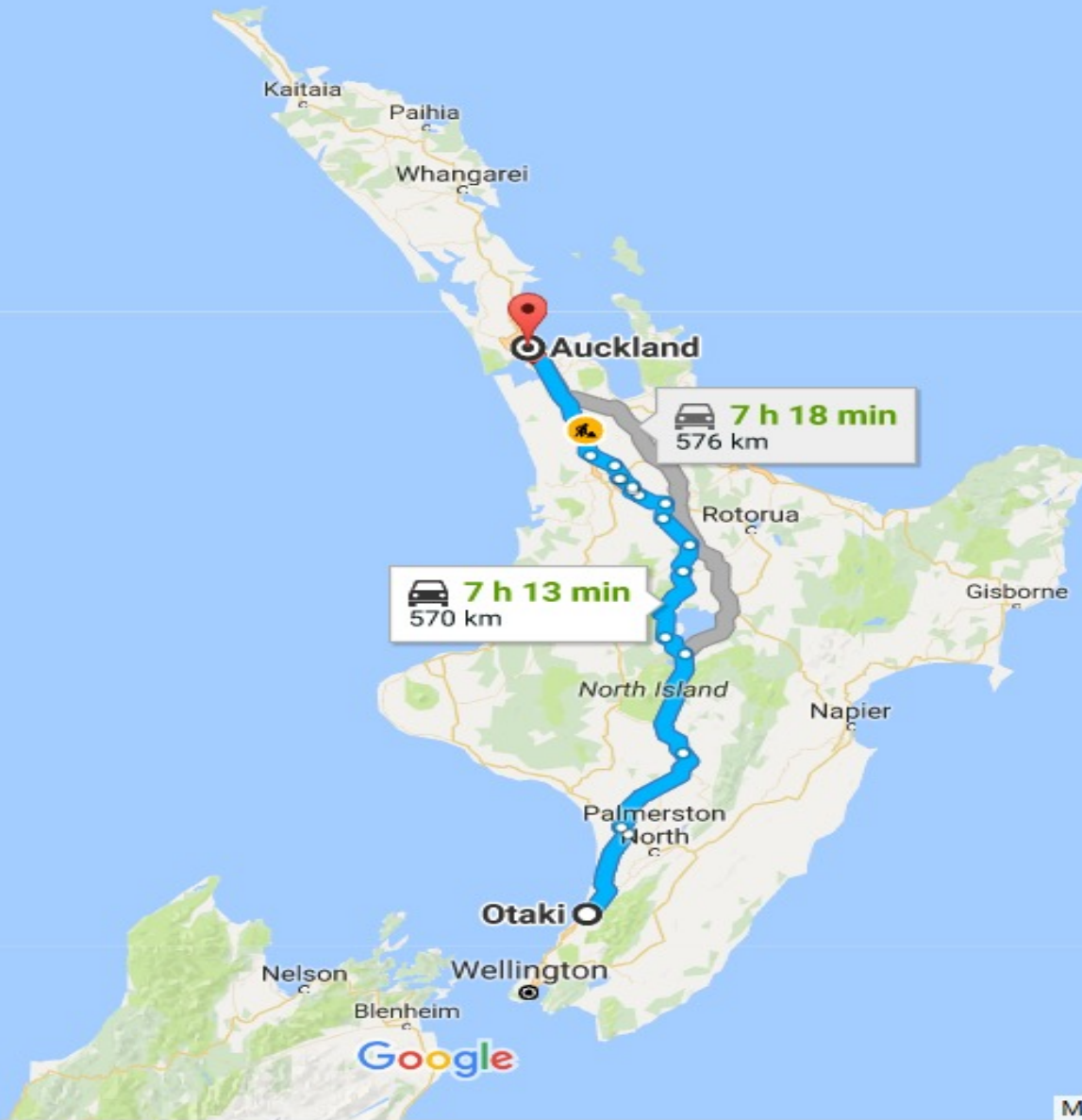


11 Aquatic
centres every day



5.5 Billion
litres per year

**570km
of pipes**



Map data ©2017 Google

Both sides of the fence

Public side

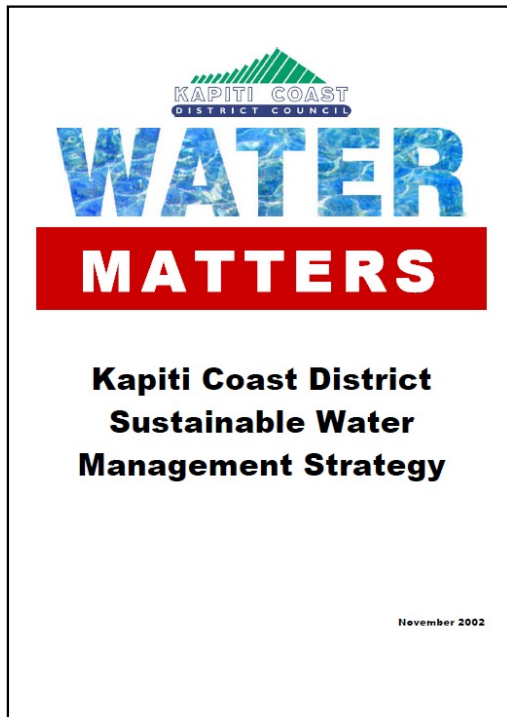


Private Side

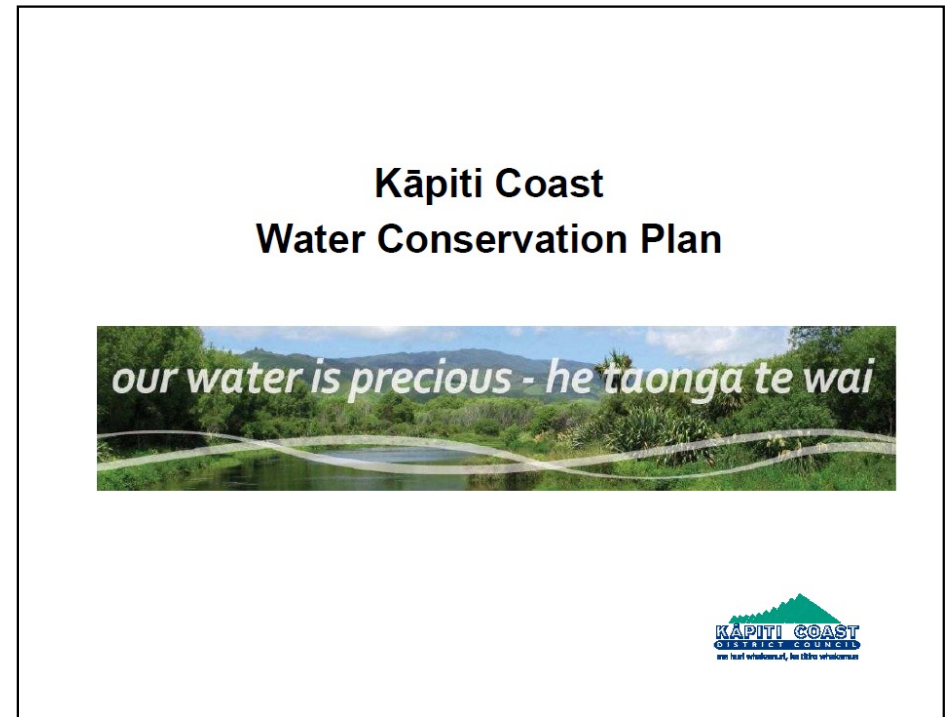


Guidance

2003 Water Matters Strategy



2010 Water Conservation Plan



Peak Water Use Target



TARGET

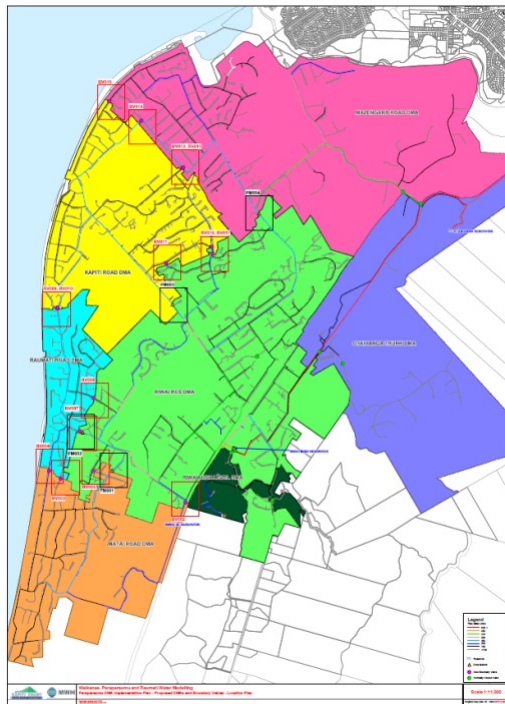
Water loss management

Figure 2.2: Annual Water Balance used in BenchlossNZ and CheckCalcsNZ

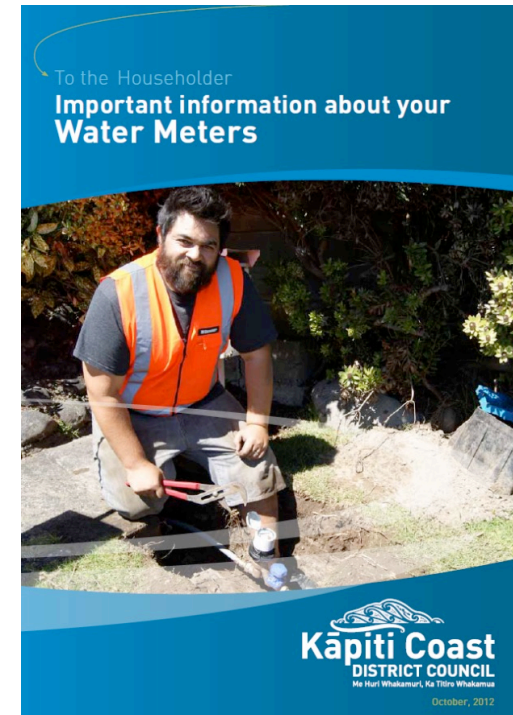
Own Sources	System Input	Water Exported			Billed Water Exported to other Systems	Revenue Water
		Water Supplied	Authorised Consumption	Billed Authorised Consumption	Billed Metered Consumption by Registered Customers	
Billed Unmetered Consumption by Registered Customers						
Unbilled Authorised Consumption	Metered		Non-Revenue Water			
	Unmetered					
Water Losses	Apparent Losses			Unauthorised Consumption		
	Real Losses	Customer Metering Under-registration				
Water Imported	(allow for bulk meter errors)			Leakage on Mains		
				Leakage and Overflows at Service Reservoirs		
				Leakage on Service Connections up to the street/property boundary		

Tools in place

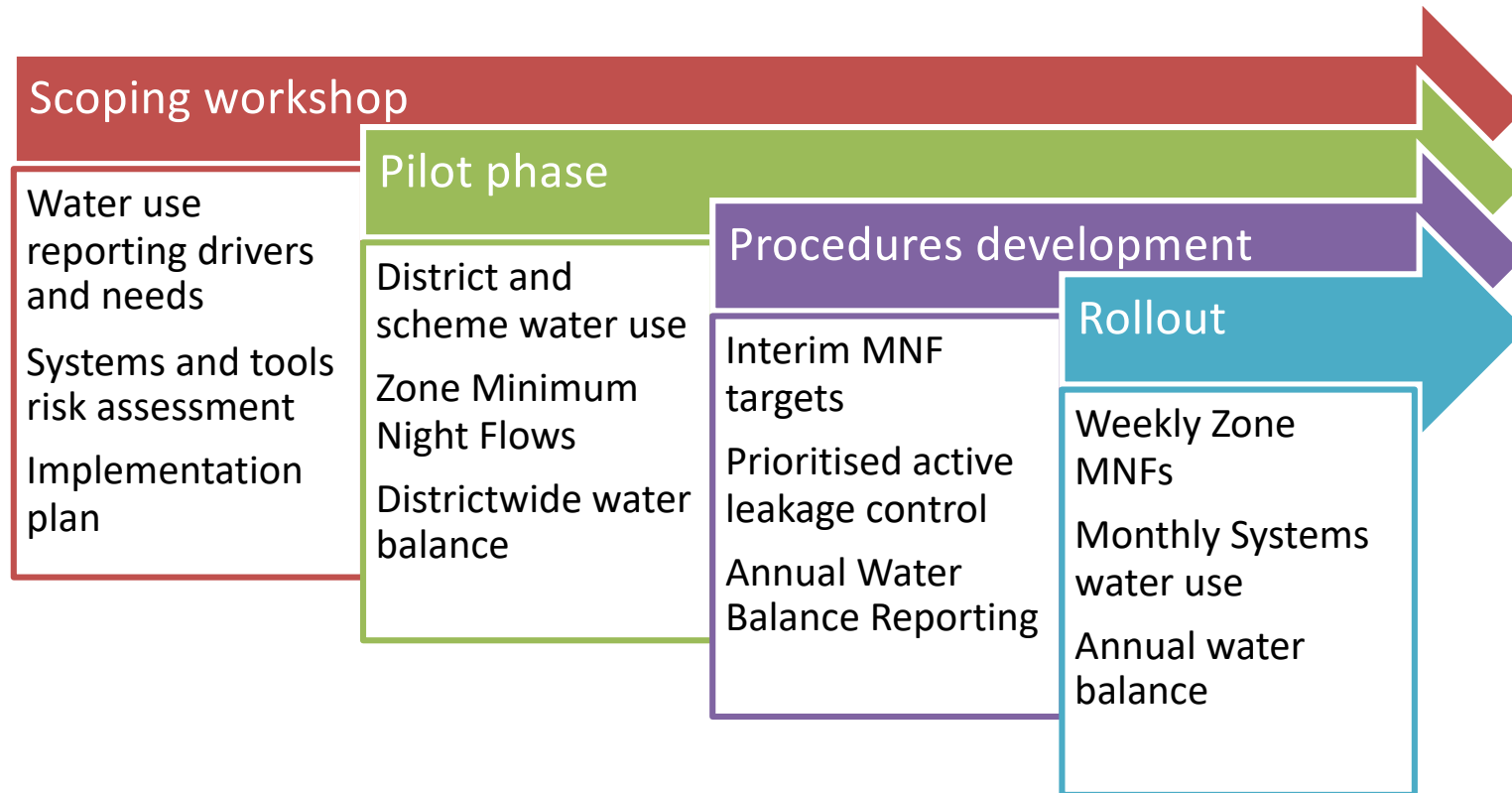
2010 District Meter Zones



2012-14 Consumer metering



2013 Water Use Mgmt Study

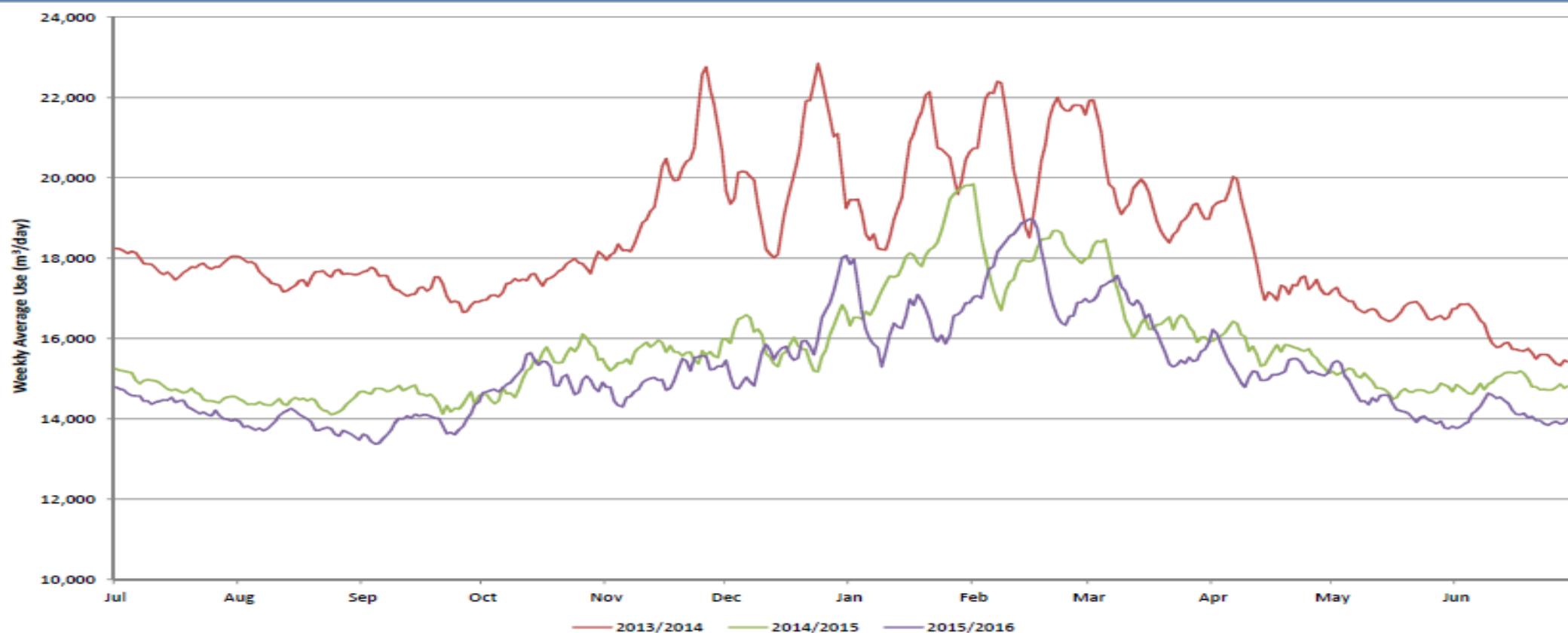


District Water Use Report: District Total Weekly Average Use Year To Date

2015/2016

Water Use: Districtwide

Date Generated: 15 Sep 2017



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

	Daily Total (m³/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 ²	No. ServiceConnections ³	Length of Mains ⁴	No. Primary + Secondary Connections	Ave MNF	Estimated Customer Night Consumption	Estimated Losses					UARL	Snapshot IU	UARL Notes	Zone Rank
			km		L/s	m ³ /hr	m ³ /hr	m ³ /day	Lipok/day	Licor/day	m ³ /hr				
Kakariki (incl WTP Process Water)	2438	0	0	0	8.0	0.0	-	-	-	-	0.0	-	-	-	-
Kakariki (excl WTP Process Water)	2438	-1	-1	-1.0	4.7	0.0	17.1	392	181	-352351	-0.1	-311.1	Refer Note 2	#OV	-
Tui High Level	111	0	0	0	0.0	0.0	0.0	0	0	#OV(0)	0.0	#OV(0)	Refer Note 2	#OV	-
Hemi	2413	0	0	0	4.8	0.0	18.1	364	159	#OV(0)	0.0	#OV(0)	Refer Note 2	#OV	-
Te Moana	3513	0	0	0	3.8	0.0	13.8	313	89	#OV(0)	0.0	#OV(0)	Refer Note 2	#OV	-
Rauparaha	2887	0	0	0	3.0	0.0	10.7	245	88	#OV(0)	0.0	#OV(0)	Refer Note 2	#OV	-
Peka Peka (Refer Note 1)	178	0	0	0	0.4	0.0	1.4	33	186	#OV(0)	0.0	#OV(0)	Refer Note 2	#OV	-
Waikanae Total (incl WTP Process Water)	11515	0	0	0.0	21.7	0.0	-	-	-	-	-	-	-	-	-
Waikanae Total (excl WTP Process Water)	11515	-1	0	-1.0	18.2	0.0	85.4	1905	131	-1505139	0.0	-28046.1	Refer Note 2	-	-

Parameters for Loss Estimate (MNF Method)

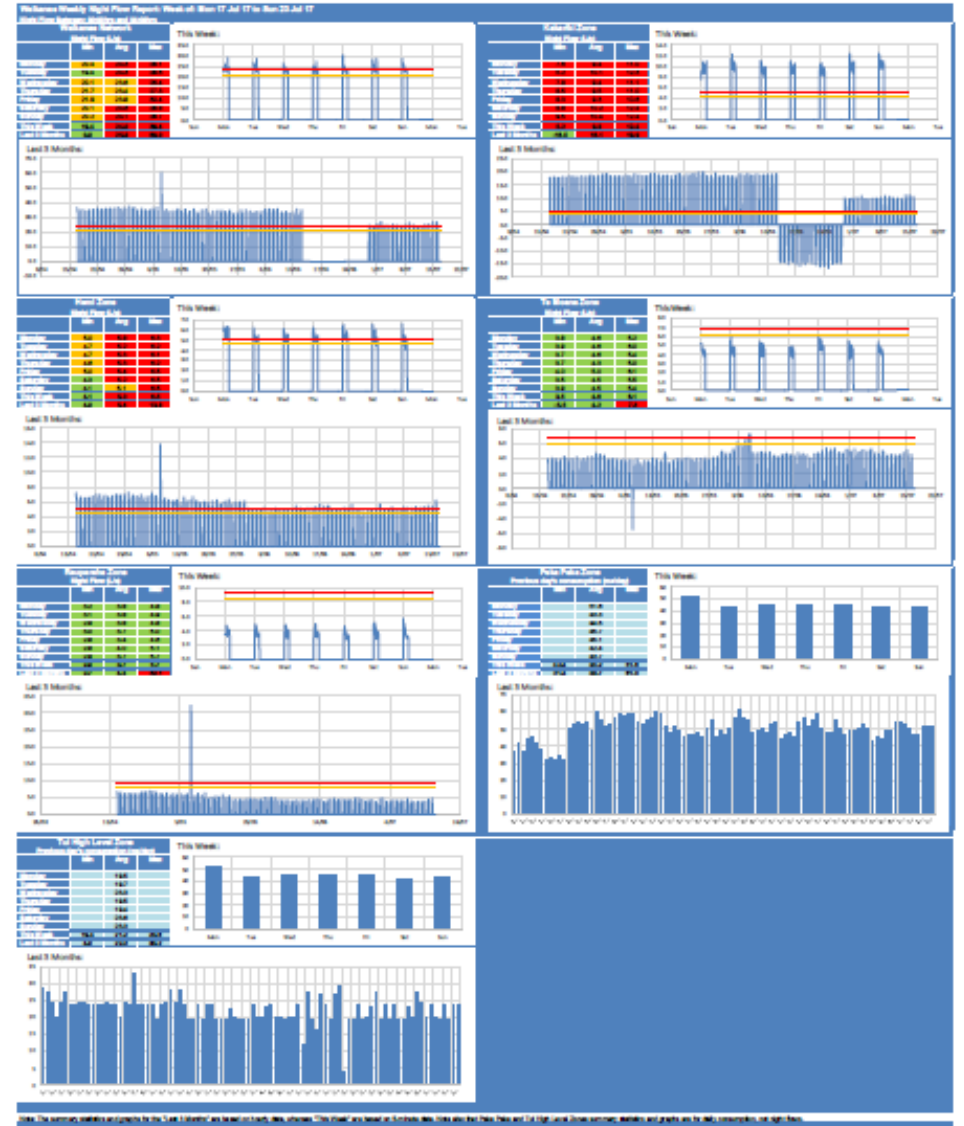
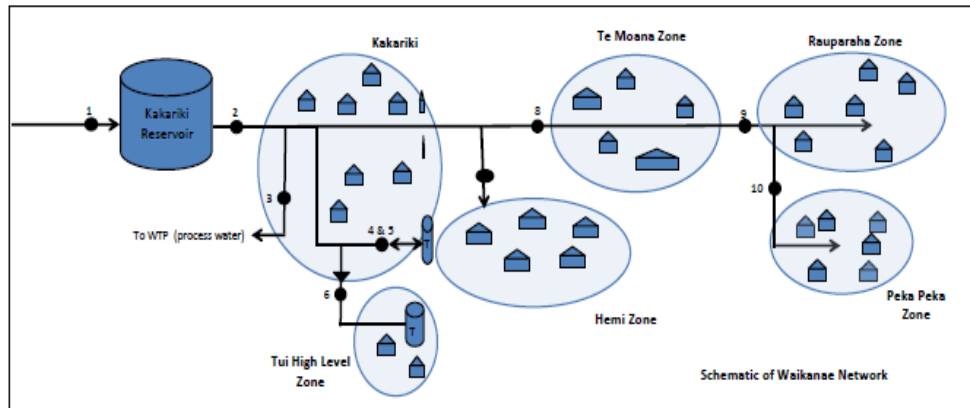
Allowance for genuine night time use	2.5 L/cor/hour
Hour to day factor	23
Average Zone Night Pressure	70 m

Notes

- 1) Peka Peka is a restricted supply
- 2) UARL and Snapshot IU may be unavailable for small areas (ie. #20Lm/Hic=3000)
- 3) 2013 Population estimates based on intersection of 2013 Census Usual Resident Population by meshblock, KCCDC 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: Informat, Serge Peters 18 May 2016)
- 5) Length of Mains is total length of all Council water pipes (excluding new water mains, private pipes and drains) (Source: Informat, Serge Peters 18 Feb 2016)
- 6) No. connections is standalone primary meters plus secondary connections (ie check meters) (Source: Informat, Serge Peters 18 May 2016)
- 7) The flow rate for the Rangitikei depot hydrant is not recorded in SCADA and so this is not accounted for in the MNF calculations

Diagram ID	SCADA Tag
1	2-Waikanae Treatment Plant - Waikanae Flow
2	2-Kakariki Reservoir - Flow Rate
3	3-WWTP Process Water - 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

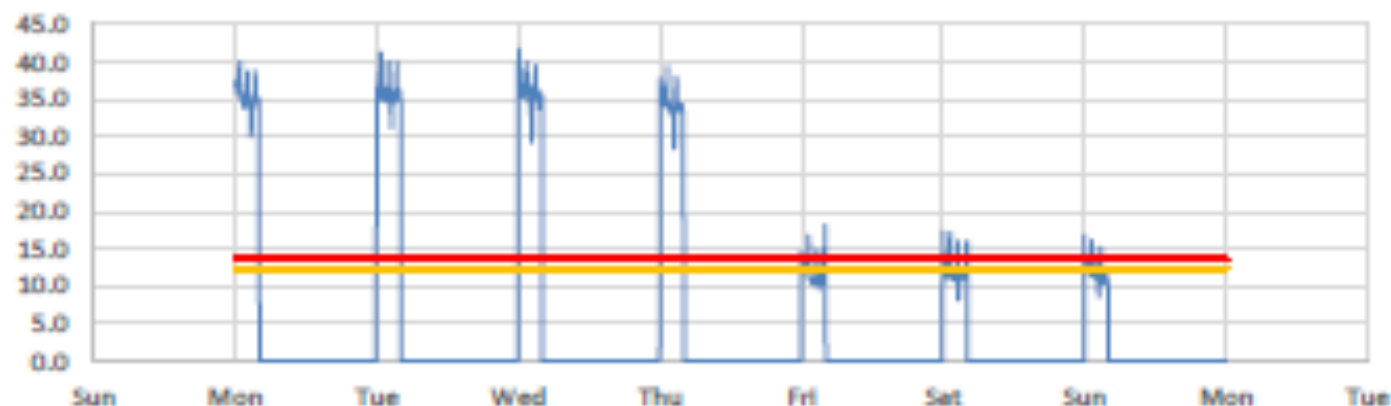
Kakariki Zone = 2 + 4 + 5 + 6 + 7 + 8
Tui High Level Zone = 6
Hemi Zone = 7
Te Moana Zone = 8 + 9
Rauparaha Zone = 9 + 10
Peka Peka Zone = 10



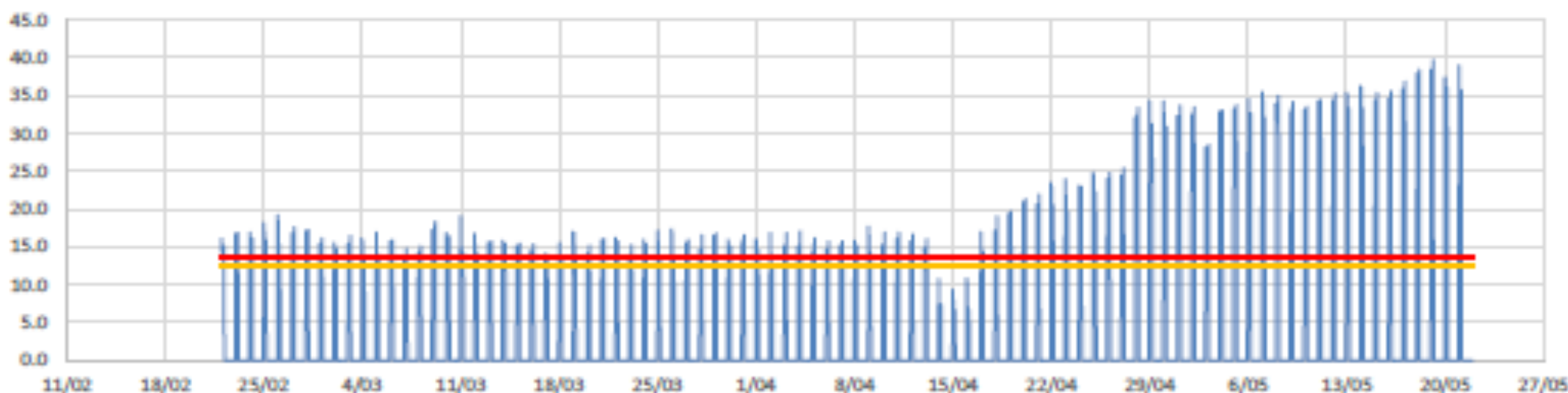
Riwai Zone Night Flow (L/s)

	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	28.4	34.5	39.4
Friday	9.8	12.1	18.2
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:

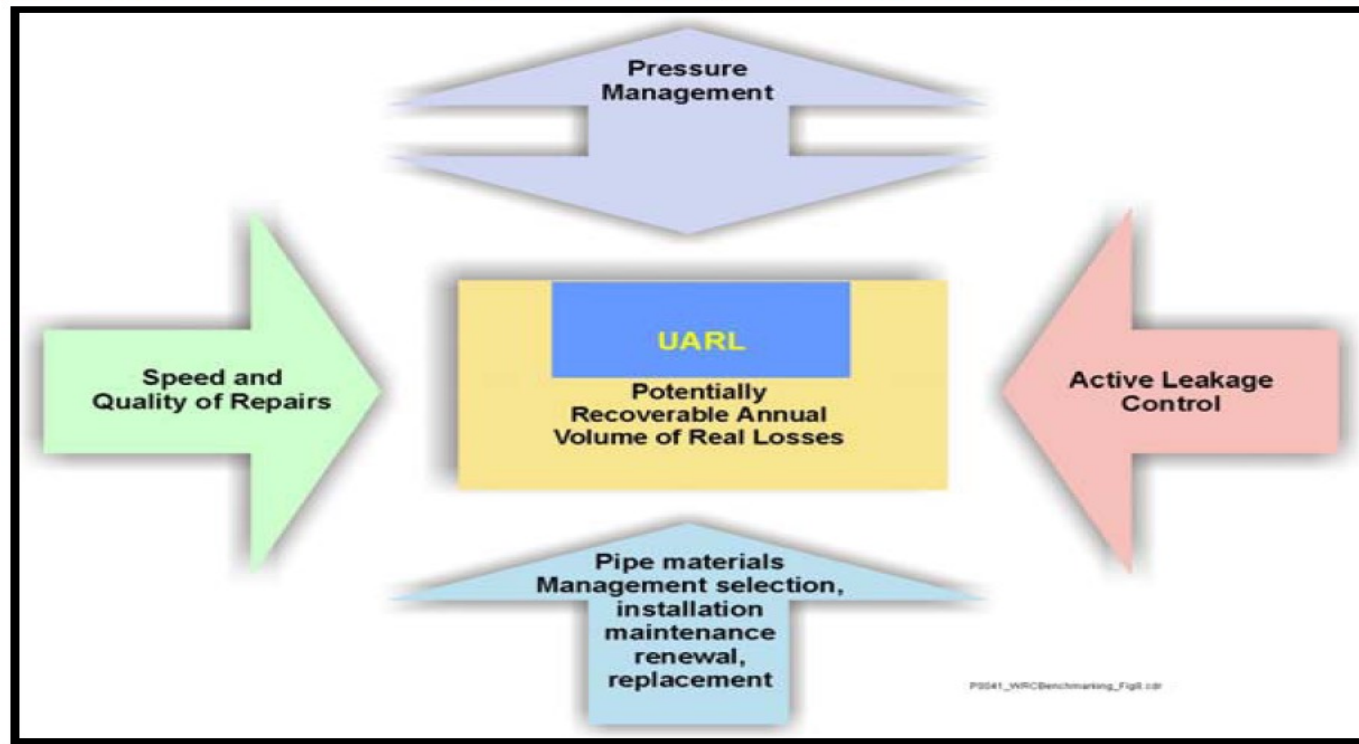


Last 3 Months:



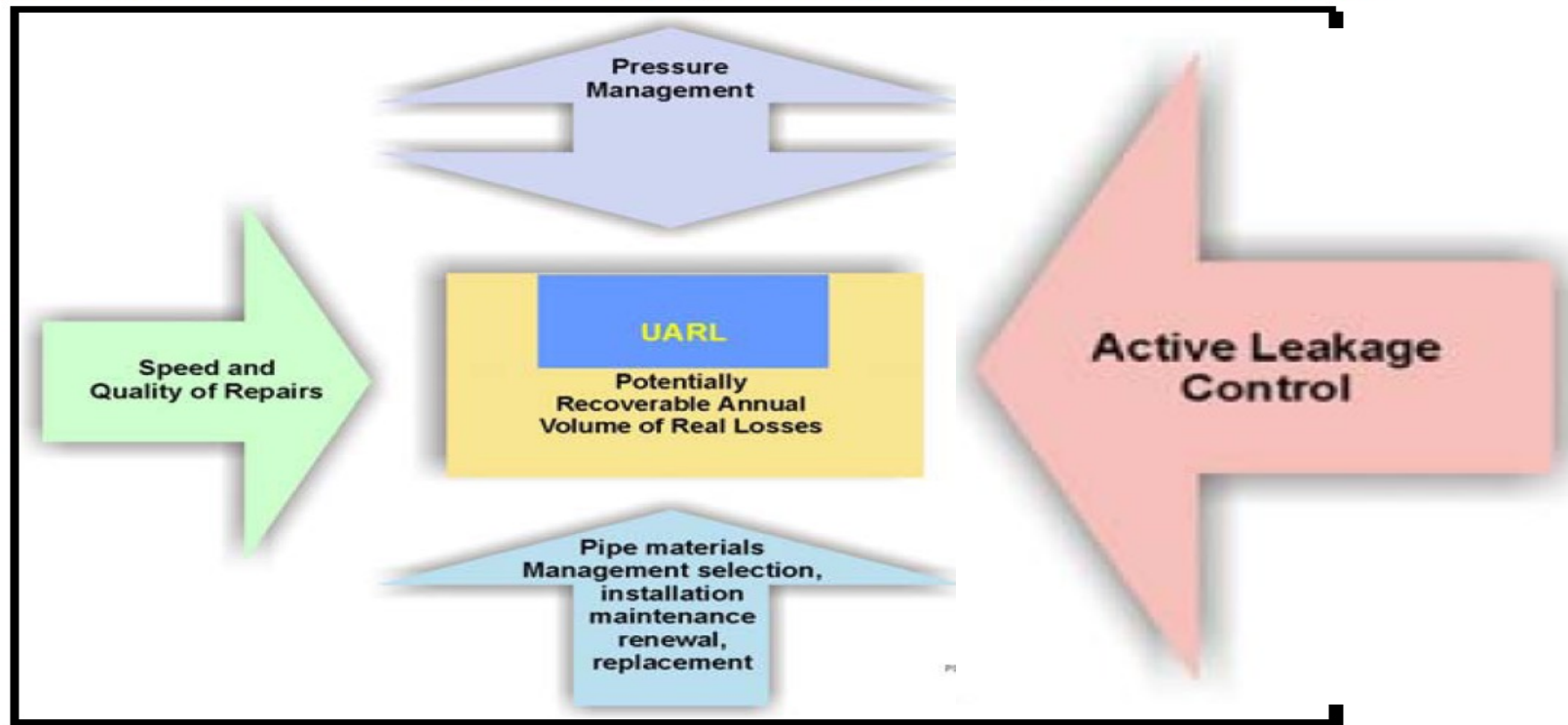
Water loss management

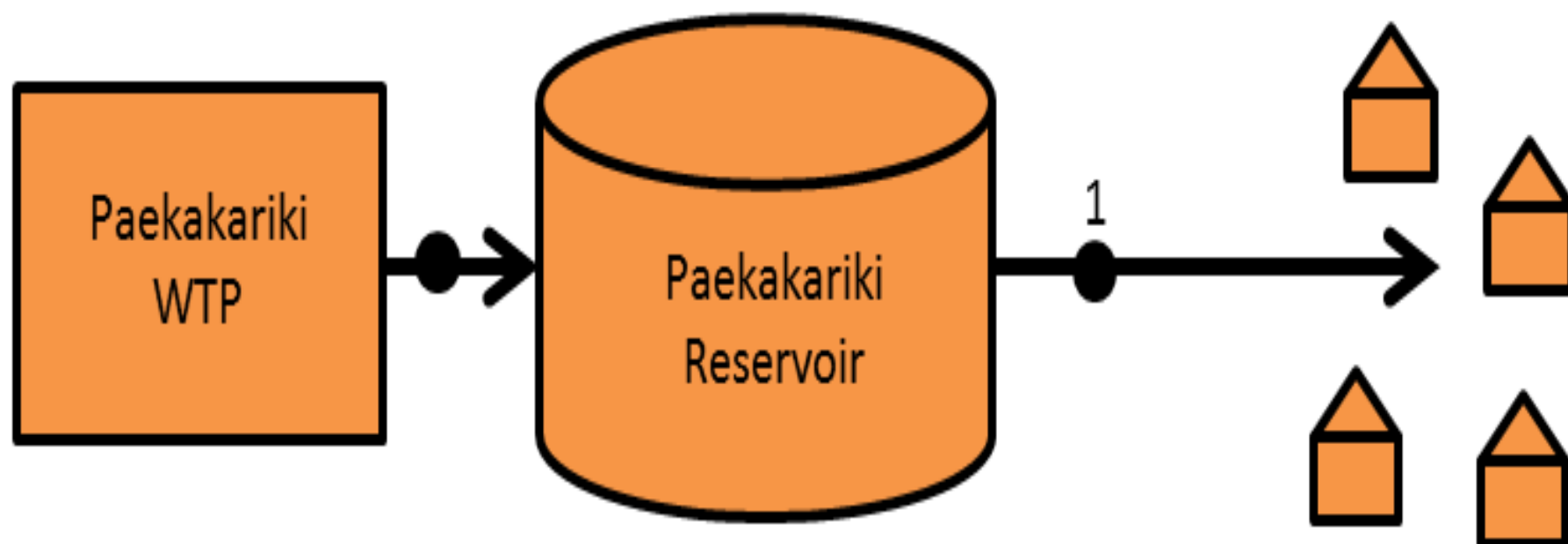
Figure 2.4: The four complementary leakage management activities



Water loss management

Figure 2.4: The four complementary leakage management activities





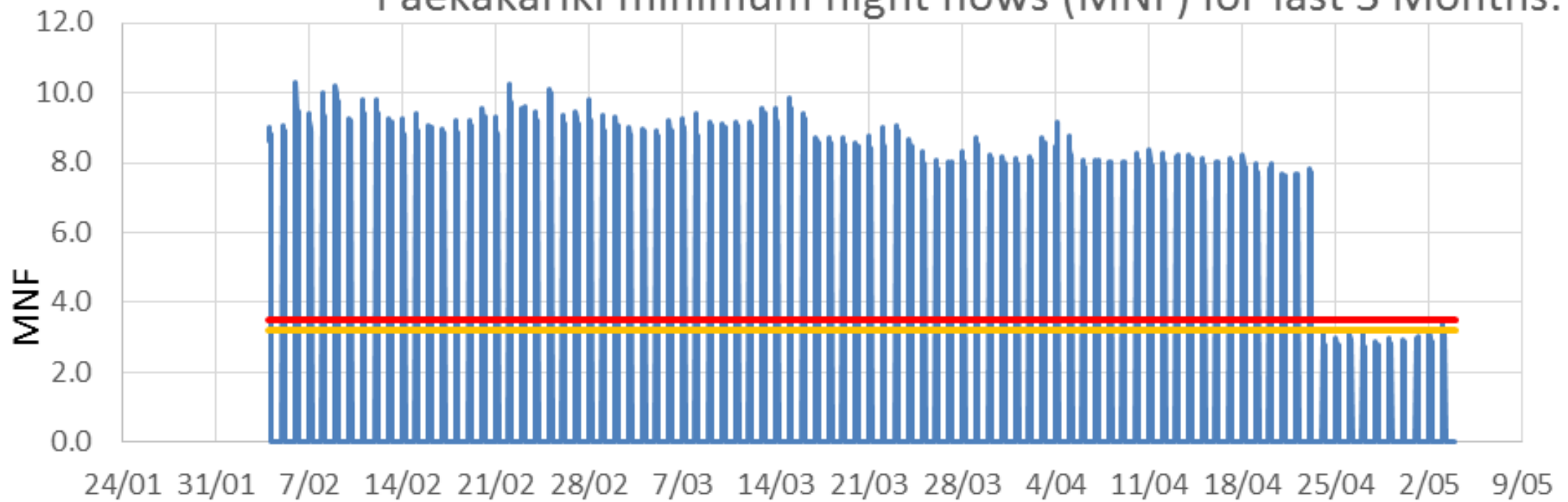
Schematic of Paekakariki Scheme

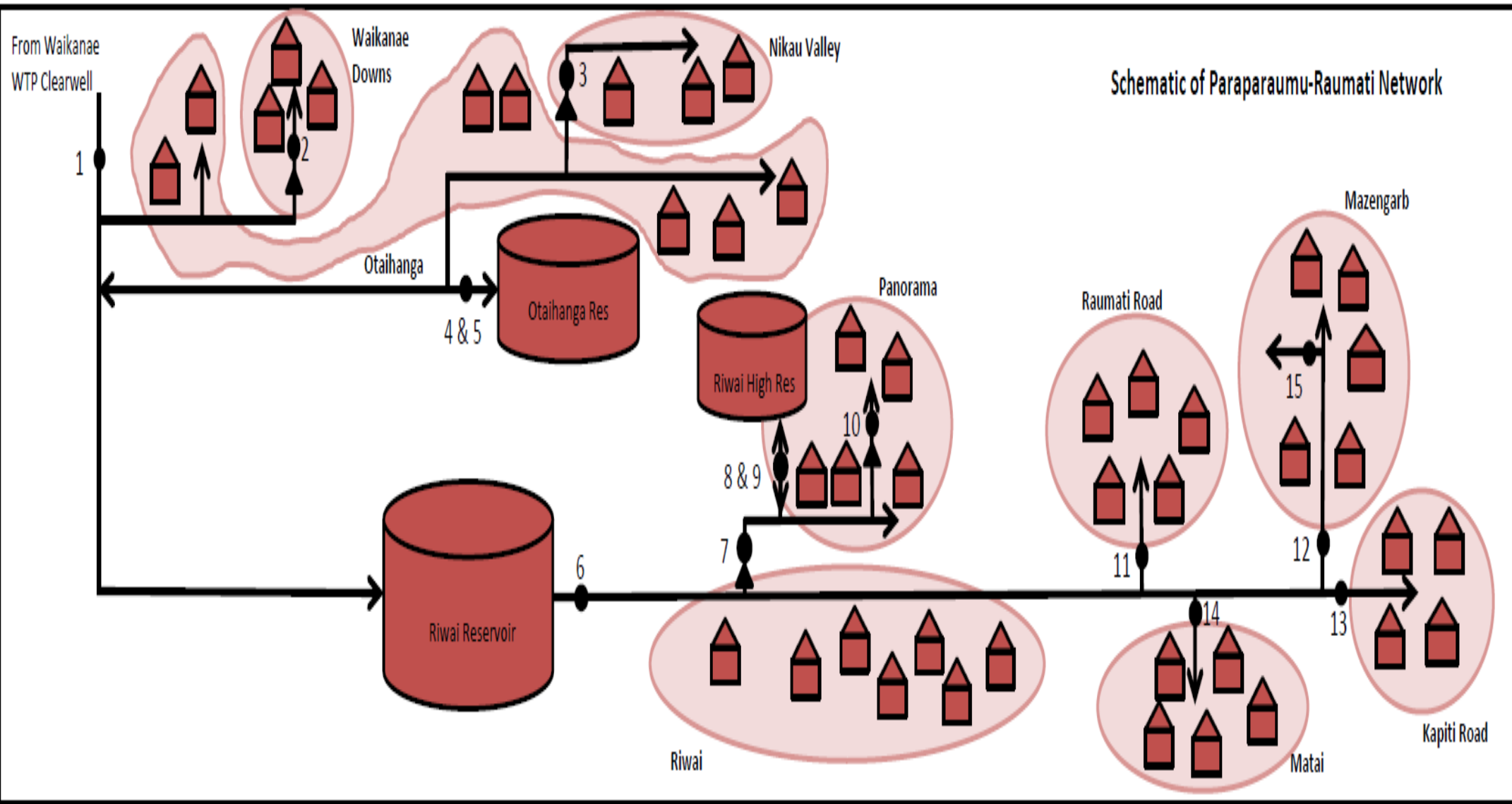




432 m³/day
or around 5 l/s

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





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

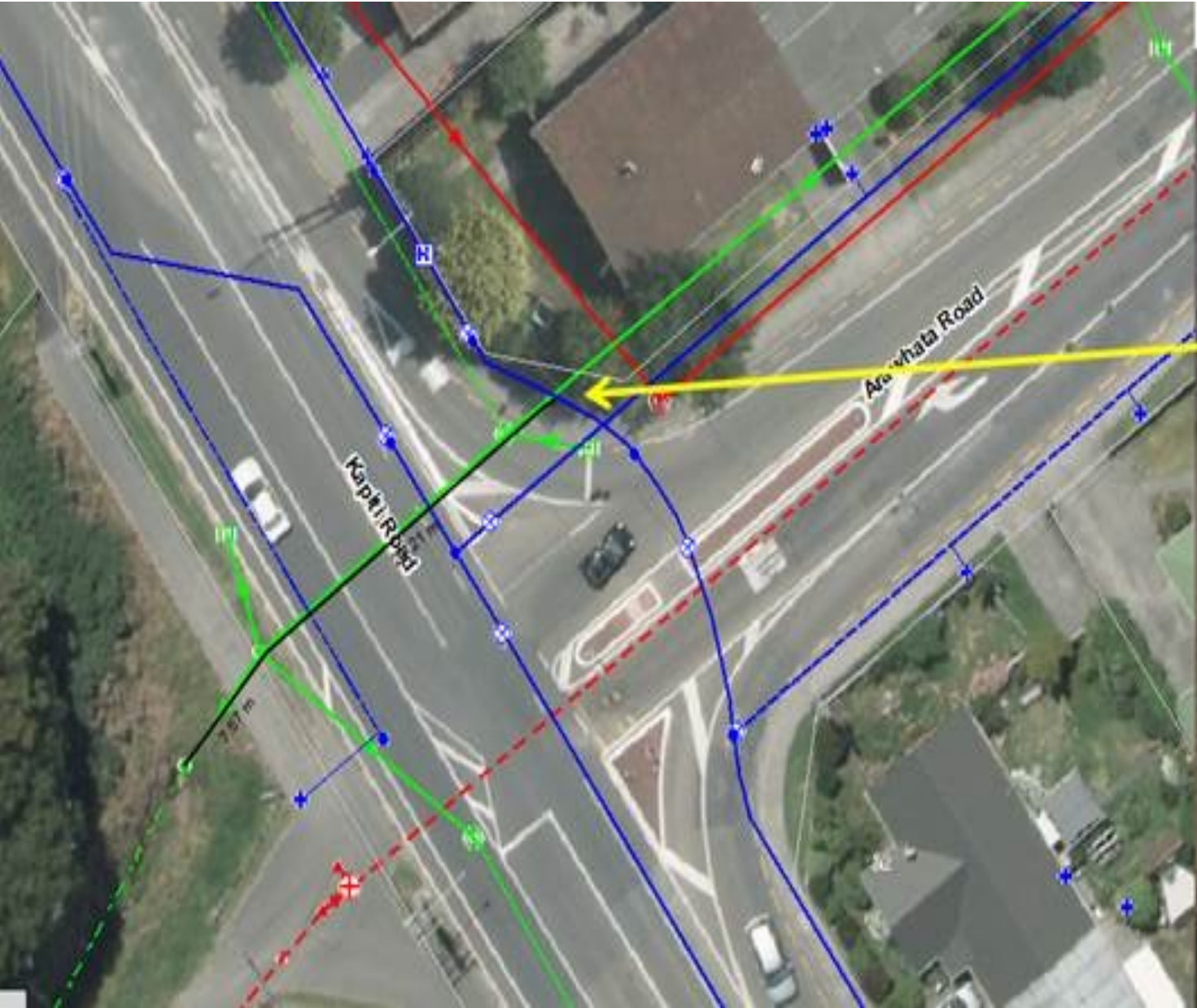


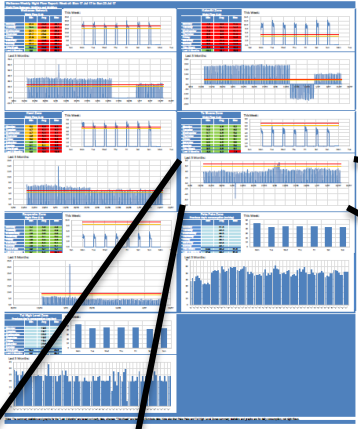
Results 19 May

Acoustically located

Confirmed by visible flow in SW

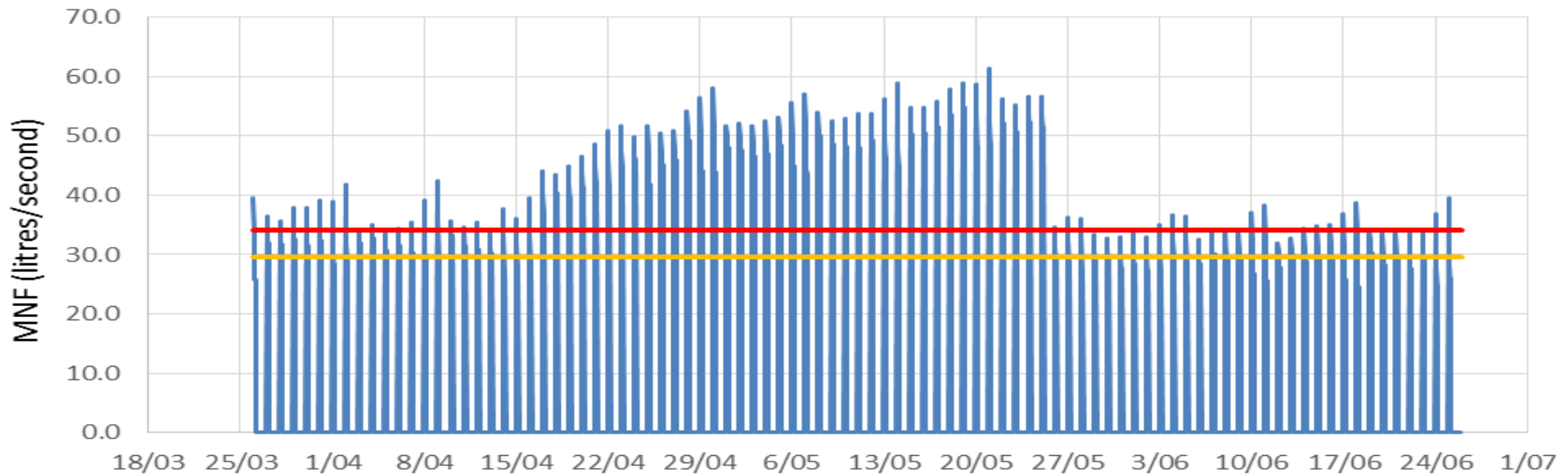
Primary arterial road = TMP





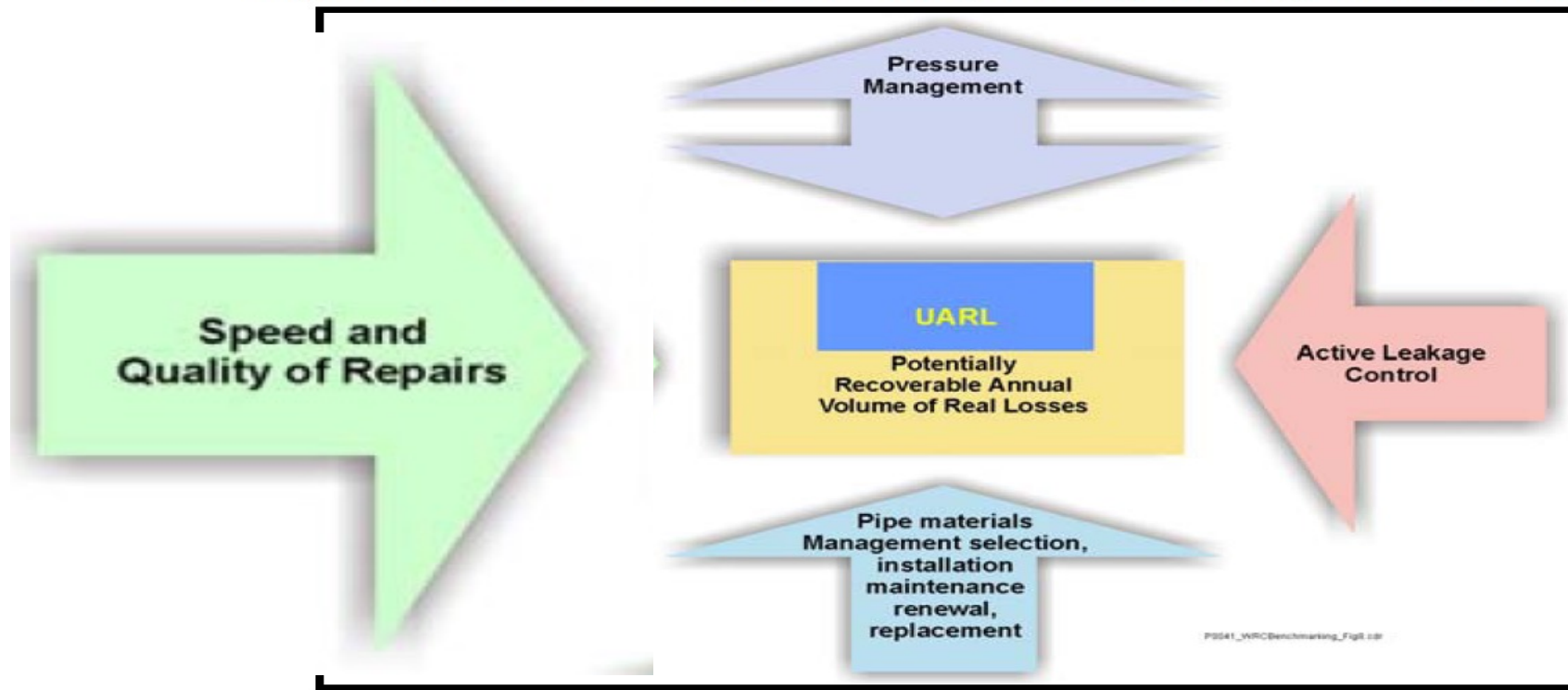
1,900 m³/day
or around 21 l/s

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



Water loss management

Figure 2.4: The four complementary leakage management activities

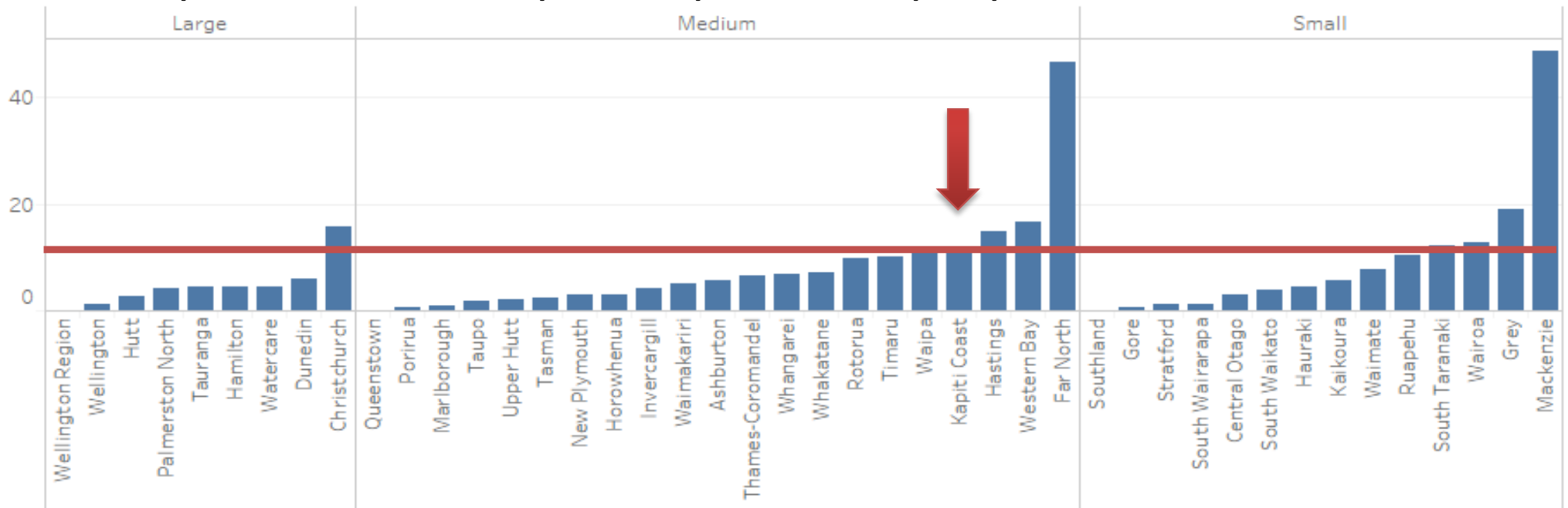




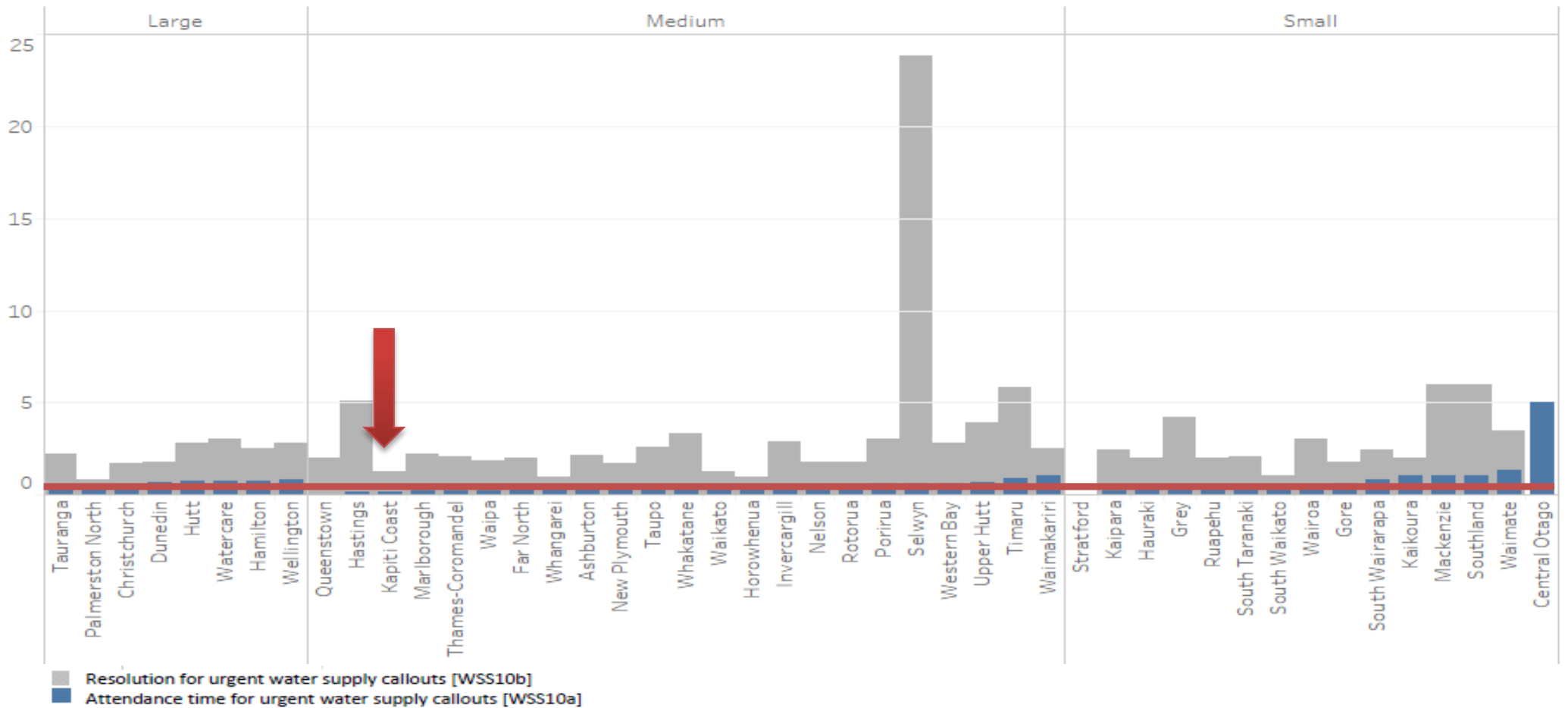
760 Repairs
per year

Water Interruptions

- Unplanned interruptions per 1000 properties

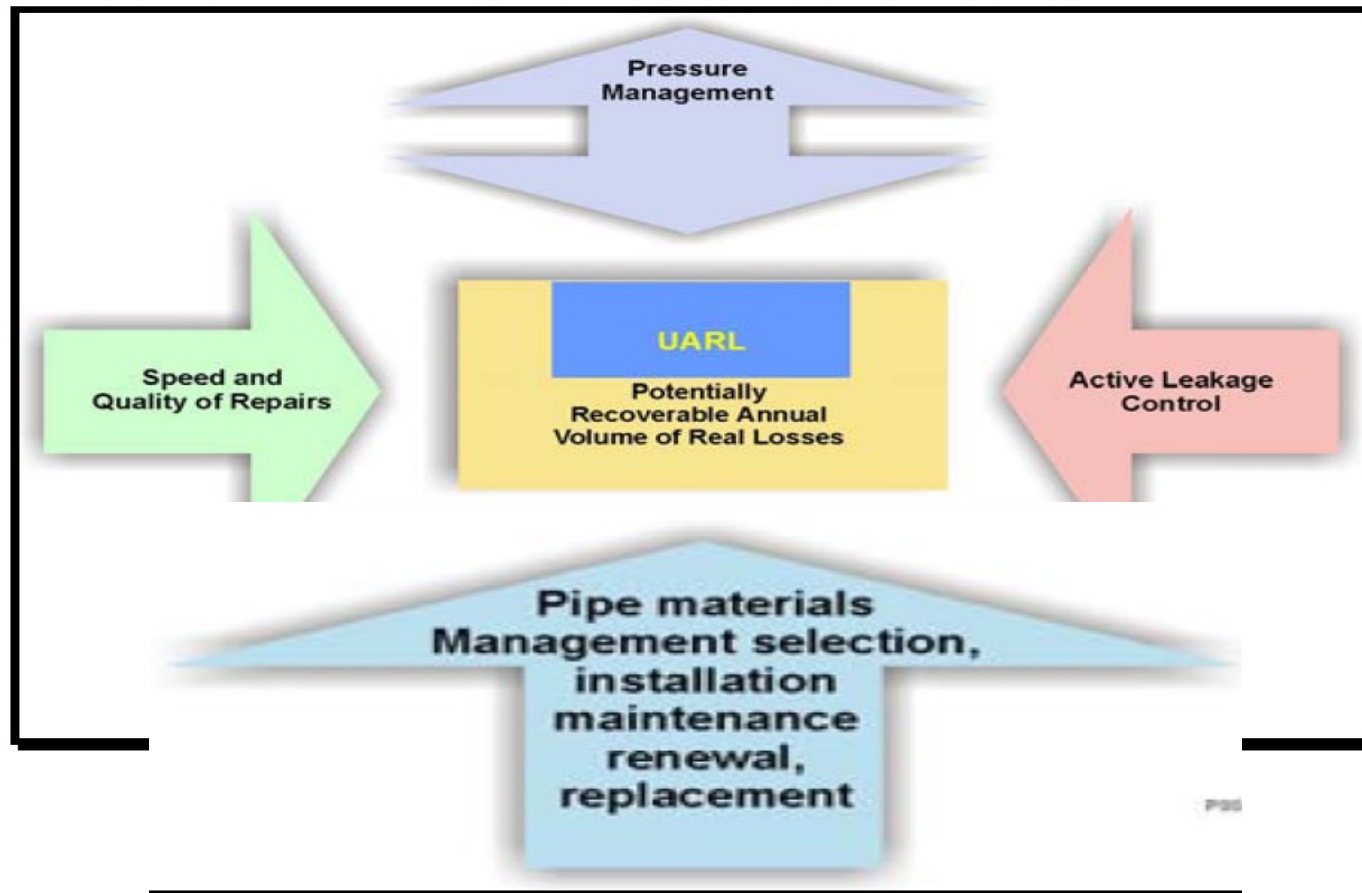


Water Supply Response Time



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

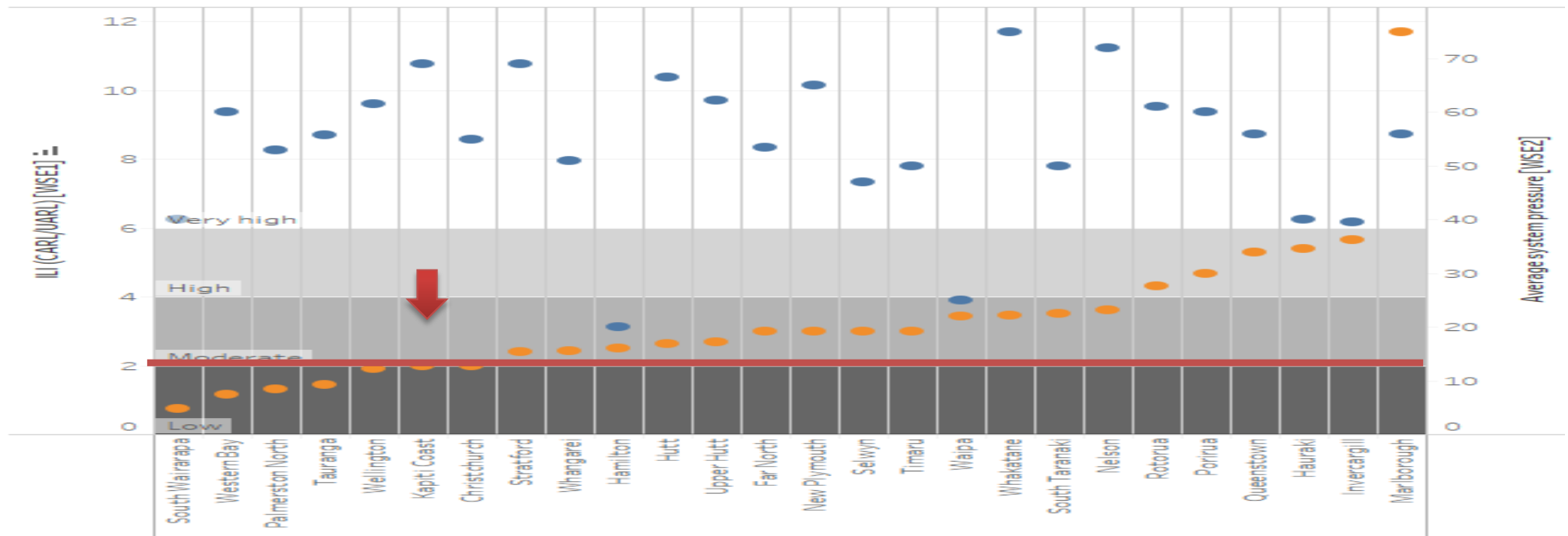
- Continue reactive lateral interventions and active leak detection
- Develop criteria for reactive lateral replacement
- Carry out trial lateral replacements
- Reassess priority zones following data collection improvements

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





On the private side



First Trial Readings – April 2014

INFORMATION ON
WATER CHARGING
CHANGES INSIDE



IMPORTANT!
YOUR FIRST TRIAL
WATER METER READING

Name
Address Line 1
Address Line 2
Address Line 3

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 (m ³)	Daily Average Use (litres)
42	100	125	25	

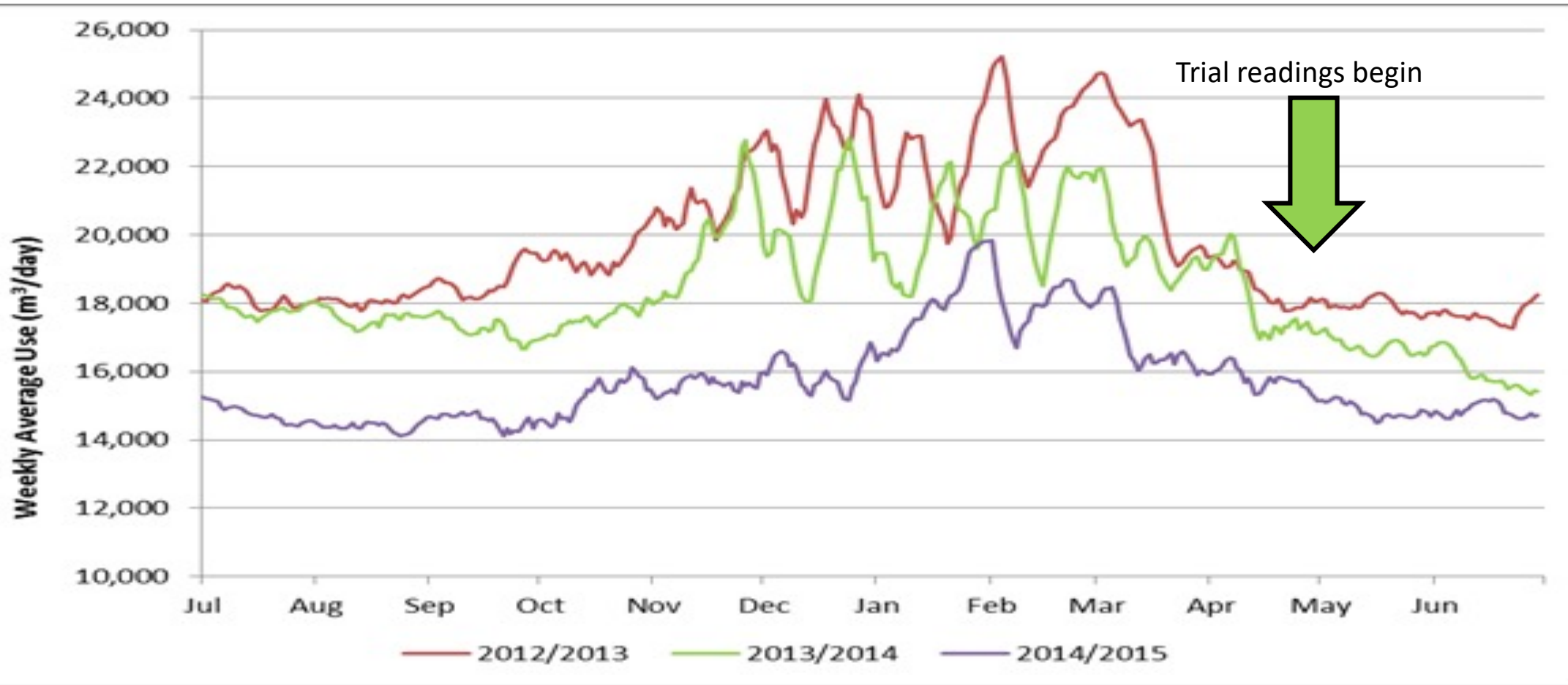
ESTIMATED QUARTERLY CHARGE BASED ON YOUR TRIAL READING

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 = 2000⁺L

PROPERTIES

WATER USED PER DAY

**AS IDENTIFIED VIA
TRIAL METER READINGS**



70%

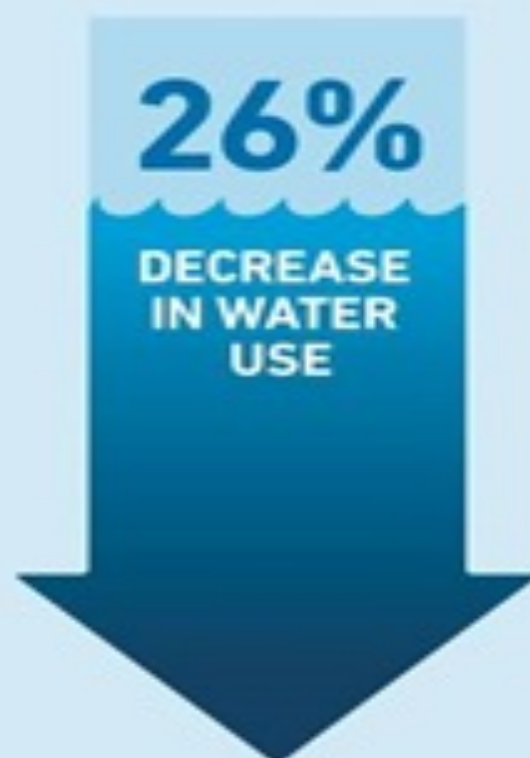
DECREASE IN WATER USE

**AFTER FIXING LEAKS AND
CHANGING WATER USE HABITS**

WATER USE REDUCTION ACROSS THE DISTRICT



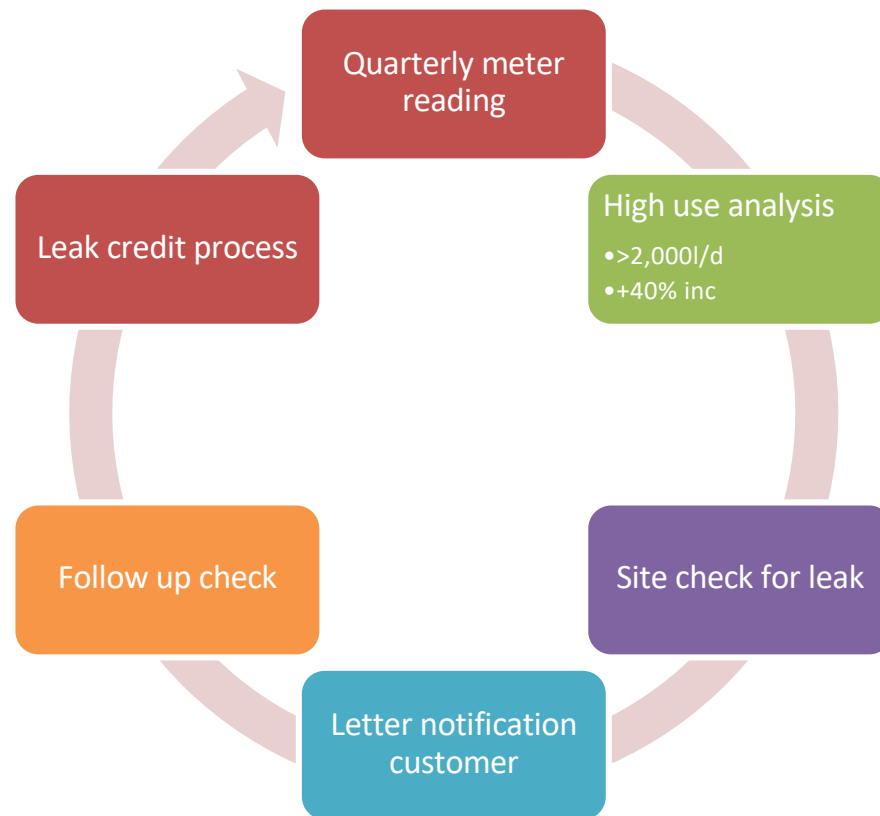
BEFORE WATER METERS
2012/13



AFTER WATER METERS
2014/15



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

Water use information



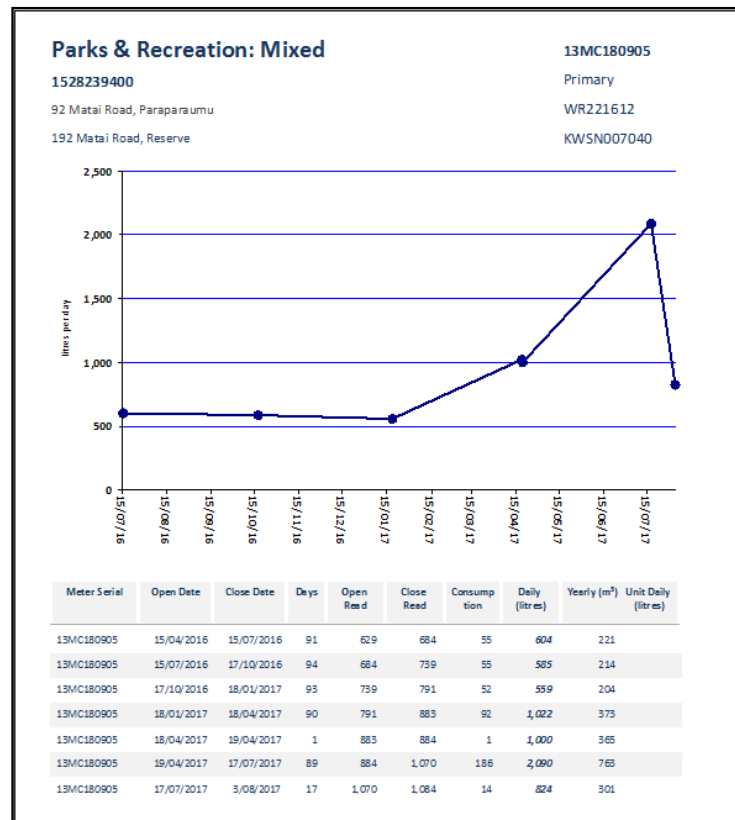
Leak repair directory



Instructional Videos



Council property water use



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