

The impact of excess water use charges in Christchurch

Michele McDonald, Christchurch City Council



water
NEW ZEALAND
CONFERENCE & EXPO
17-19 OCTOBER 2023
Tākina, Te Whanganui-a-Tara Wellington



The impact of excess water use charges in Christchurch

Contents

- Introduction
- Volumetric charging objectives
- A journey through 30 years
- Implementation process
- Realized impacts
- Impact of rain on garden watering
- Benefits – now and envisioned
- Effect of an increased allowance

Opinion: Pull the plug on unfair Christchurch water charges

'Definitely not': Residents refuse to pay 'stupid' excess water charge in Christchurch.

A Sumner property used 12,300 litres of water each day between October and January.

An estimated nine billion litres of water is lost every year in Christchurch through broken pipes.

Man refuses to mow grass berm to protest council's new excess water charge.

Water charges no match for one Canterbury gardener

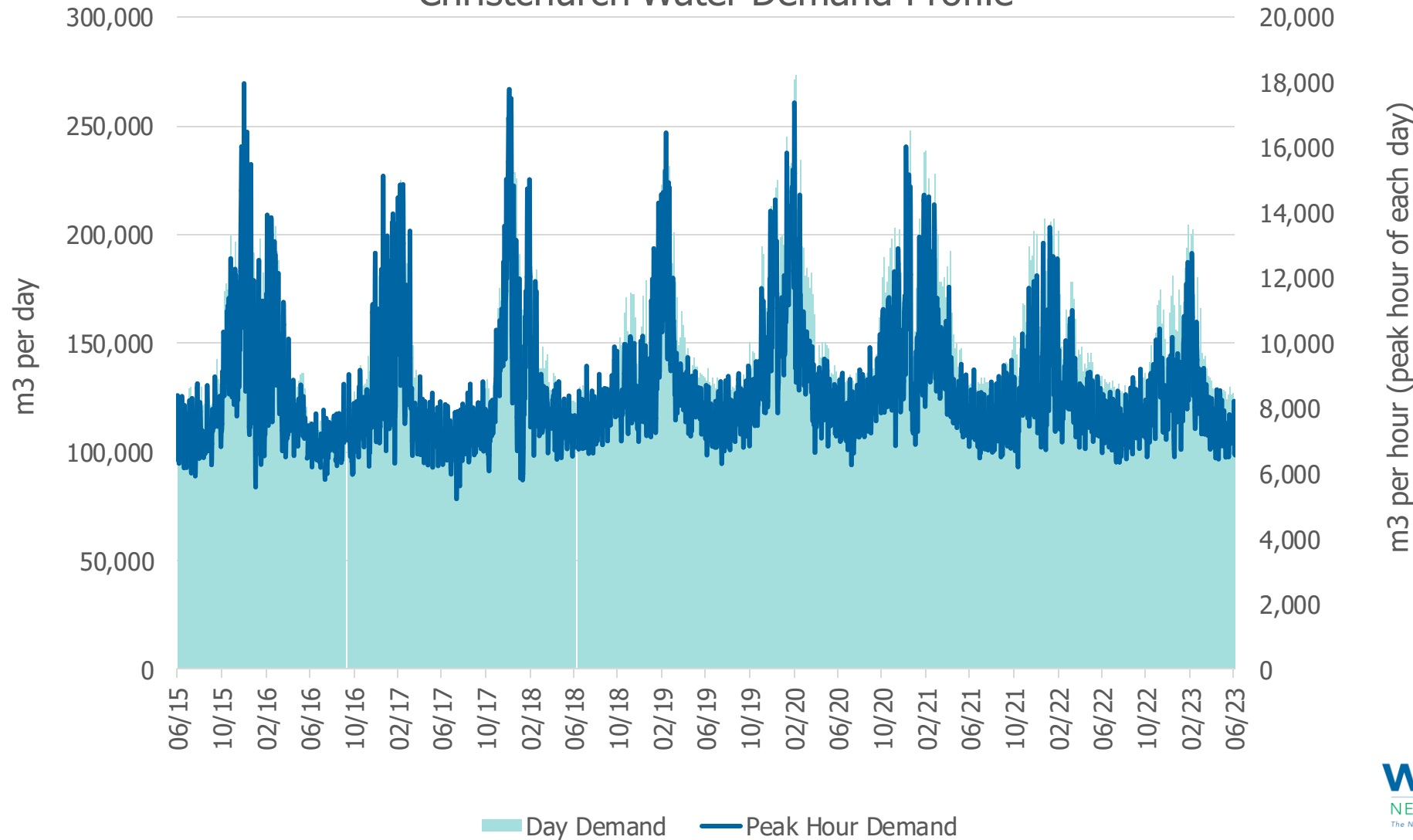
Water use falls ahead of new charge for Christchurch's heaviest users.

New charge for Christchurch's heaviest water users 'unfair' as thousands exempt.

Thousands of Christchurch residents stung with bill for using too much water.

Christchurch aka "the Garden City"

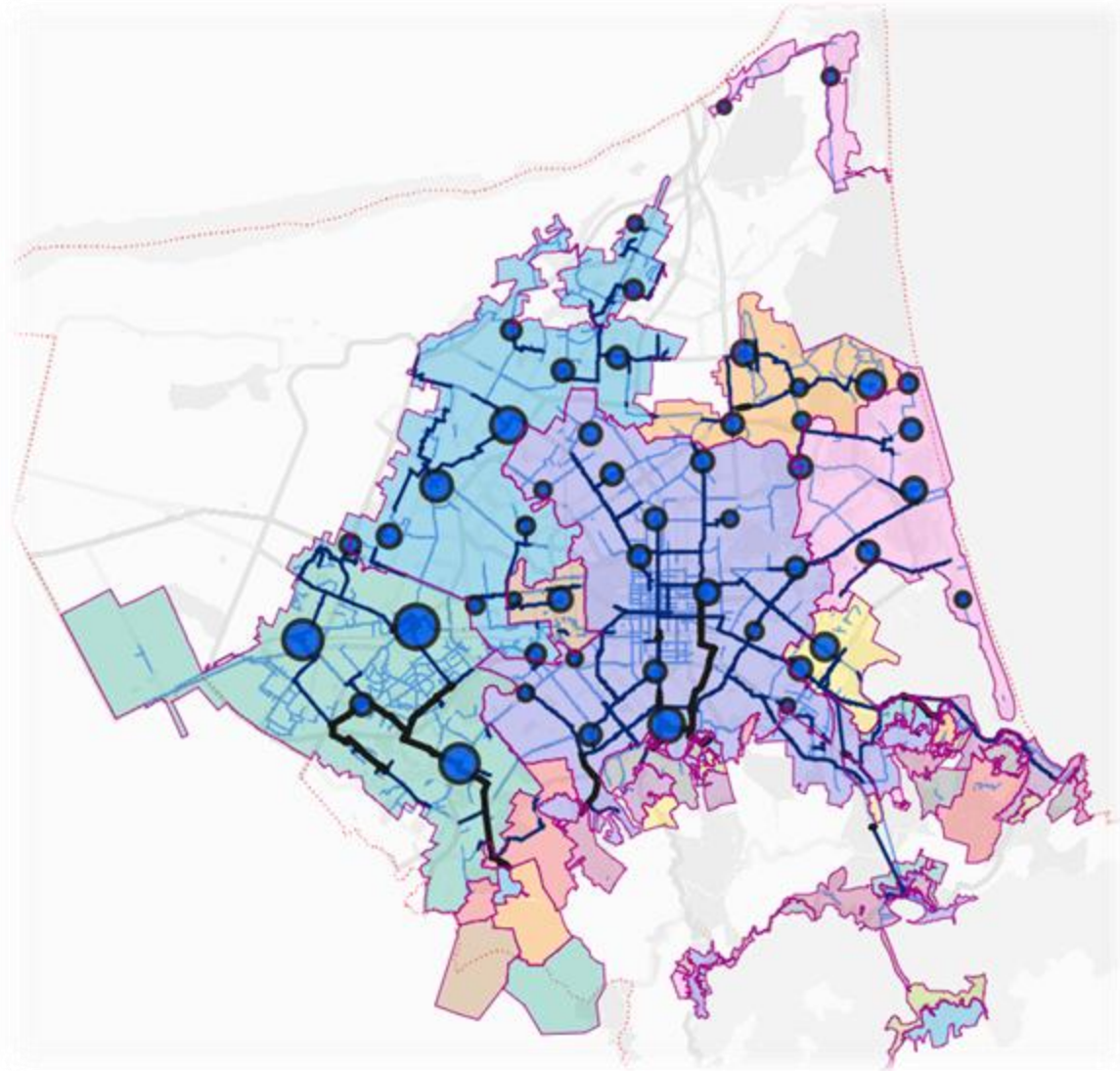
Christchurch Water Demand Profile



City wide Peak Factor ≈ 2

Some zones peak factor ≈ 3

Volumetric charging objectives



Christchurch Water Supply System

- Decentralized system
- On-demand and direct supply system
- 100% groundwater from confined aquifers
- 52 drinking water supply pump stations
- Self-sufficient water supply zones

Volumetric charging objectives

WATER DEMAND MANAGEMENT

Consumer Pays

Equitable allocation

Climate change



Water is valued / efficient use



Water resource sustainability



Better infrastructure utilization

A journey through 30 years

- ◆ Prior to 1989 amalgamation → excess water use charges for both residential and commercial in city
- After 1989 amalgamation → residential excess water use charges abolished

June 1990 'Charging for water in the new Christchurch City'
→ full water meter coverage

July 1991 ————— June 1996 Install of wall-to-wall residential water meters

Mar 1995 — Sep 1995 'Charging Policy for Christchurch City's Water Supply'
→ volume-based charge for efficient use of artesian aquifers

Public Consultation

70% of 253 submissions are opposed

→ proceed to read meters – revert charging to next Council

Oct 1996 'Strategies for the Efficient Use of Water'
→ do NOT introduce volume-based charges

A journey through 30 years

Sep
2000

→ continue meter reading and confirm top 20 domestic users
→ do NOT introduce consumption-based charges

Apr
2008

'Water Charging Options Study'

Sep
2019

'Te Wai Ora o Tāne Integrated Water Strategy'
→ assess volumetric charging for demand management

Dec
2020

'Demand Management and Charging'
→ recommends excess residential charge

Jul
2021

'Long-Term Plan 2021-31'
→ excess water residential charge

Implementation Process

October 21						
Mo	Tu	We	Th	Fr	Sa	Su
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



Increase meter reading frequency from bi-annually to quarterly



Introduce customer communication campaign
Water like you Oughta

Water Reporter

Christchurch and Banks Peninsula households that regularly use much more water than average pay extra for their water supply. Know and reduce your property's water use with our Water Reporter.

Did you receive a bill for high water use?

—

You can pay your bill online. There is no surcharge for online credit card payments.

Or find out more about applying for a remission.

Pay



What's my water use?

Search address

What sorta water user are you?

High user



Over 700L per day

At least 70 standard buckets of water per day.

Above-average user



480L to 700L per day

About 48 to 70 standard buckets of water per day.

Low user



Below 480L per day

Up to 48 standard buckets of water per day.

Open all

+ High water user?

Implementation Process

Charging for excess water starts

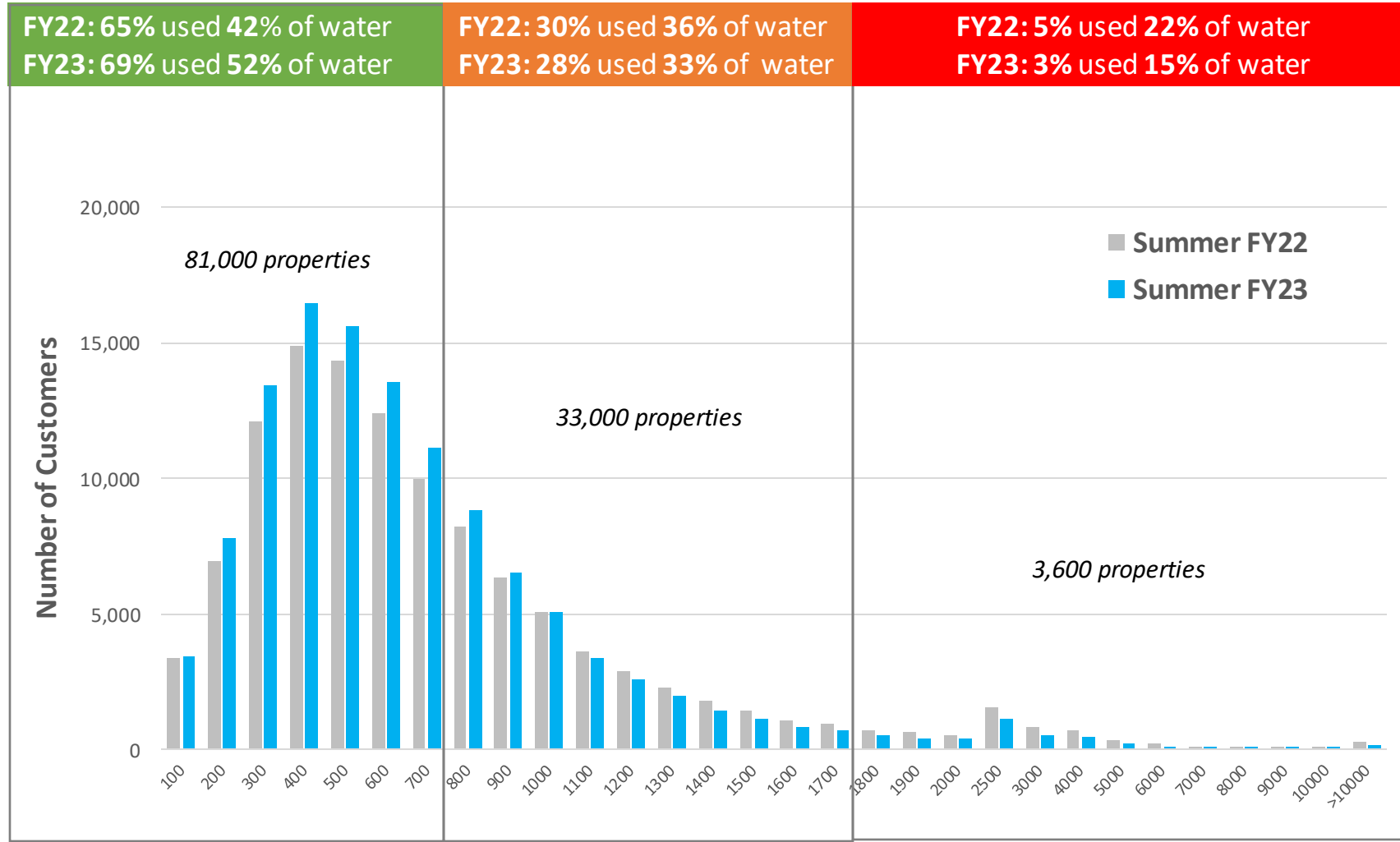
- \$1.35 per m³ for average use > 700 litres per day per property
- No charge if quarterly invoice < \$25 900 litres per day per property
- Remissions if household size is greater or equal to 9 people
- Remissions if evidence can be provided of fixed leaks

October 22						
Mo	Tu	We	Th	Fr	Sa	Su
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

First invoices issued February 2023

- 22% of meter reads triggered excess charge
- only 54% excess invoices raised (because of \$25 administrative remission)
- average invoice = \$128.74 for 3 months
- median invoice = \$59.94 for 3 months
- maximum invoice > \$10,000
- 435 invoices > \$1,000 for 3 months
- 95% of invoices < \$300 for 3 months

Realized impact on customer behaviour



FY22: 65% used 42% of water
FY23: 69% used 52% of water

FY22: 30% used 36% of water
FY23: 28% used 33% of water

FY22: 5% used 22% of water
FY23: 3% used 15% of water

MANY leak repairs

Before:

top 20% ≈ 50% of residential demand

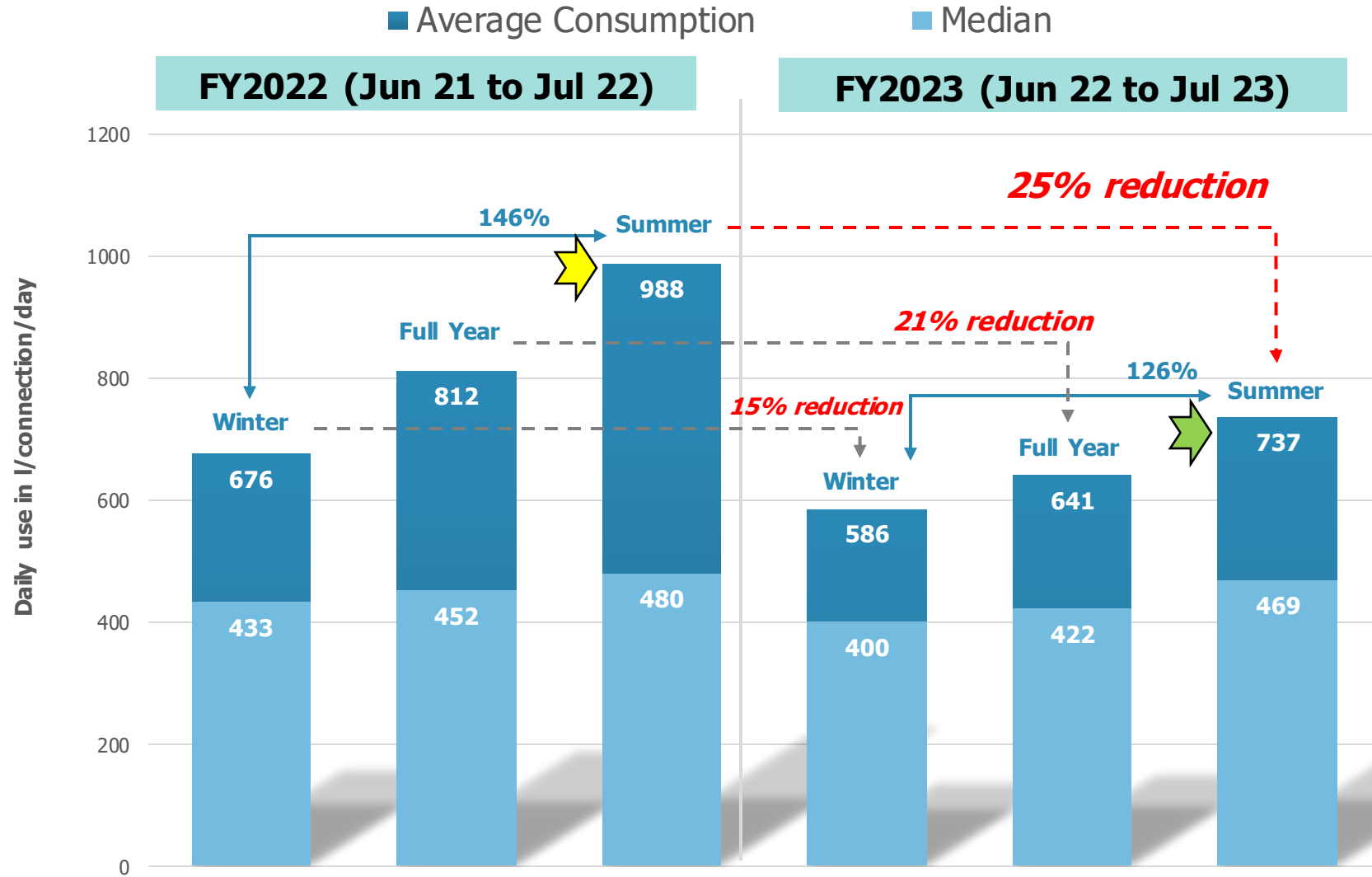
After:

top 20% ≈ 35% of residential demand

70% use < 700 l/d

Water Consumption Categories (l/connection/day)

Realized impact on customer consumption



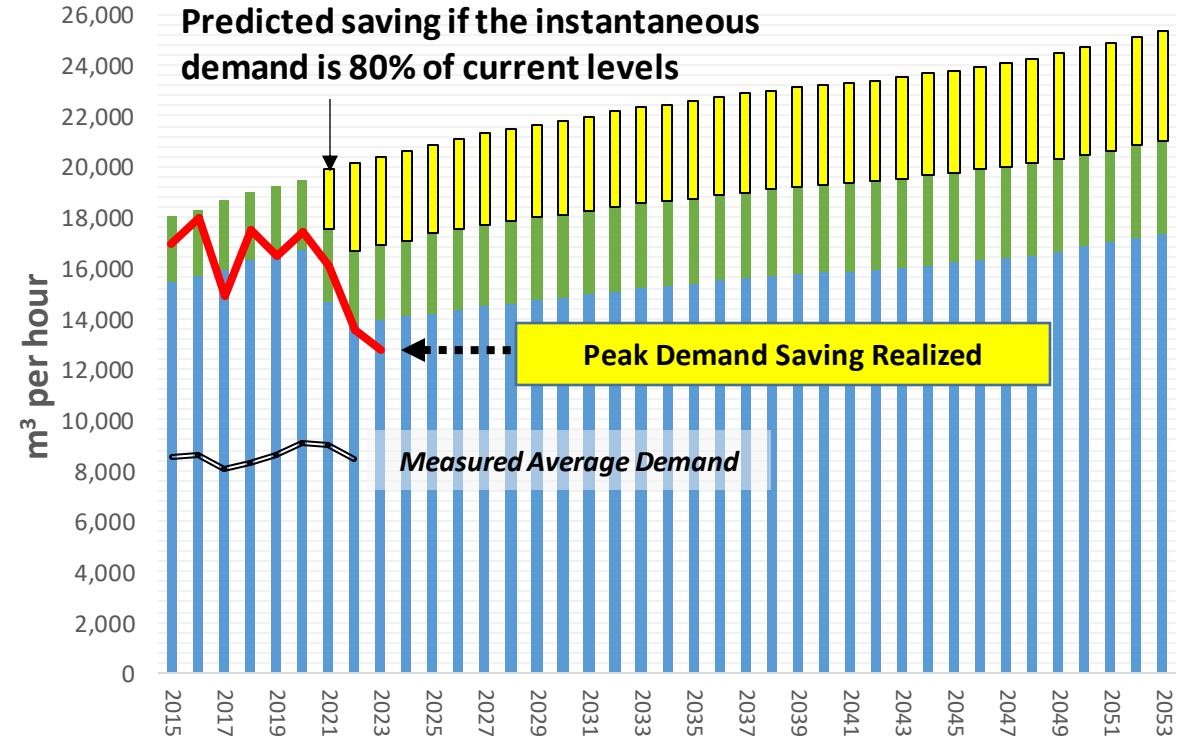
➔ Media coverage started
 Increased meter reading started
 Customer campaign started

➔ Excess charges becomes effective
 Invoicing starts towards end of summer

Realized impact on peak flow demand

Peak Instantaneous Flow Demand

Water Supply Zones	Historic Peak (Feb 2020)	FY22 Peak	FY23 Peak	Saving (Historic Peak minus FY23 Peak)	FY23 Peak % Change from Historic
m³ per hour					
Brooklands/Kaingā	156	107	113	43	-28%
Central	5,440	5,287	4,804	636	-12%
Ferrymead	1,101	895	847	254	-23%
North West	4,276	2,610	2,650	1,626	-38%
Parklands	1,519	1,257	941	578	-38%
Rawhiti	1,503	1,344	1,148	355	-24%
Riccarton	583	562	763	-180	+31%
West	3,391	2,204	2,320	1,071	-32%
TOTAL	17,382	13,560	12,764	4,618	-27%



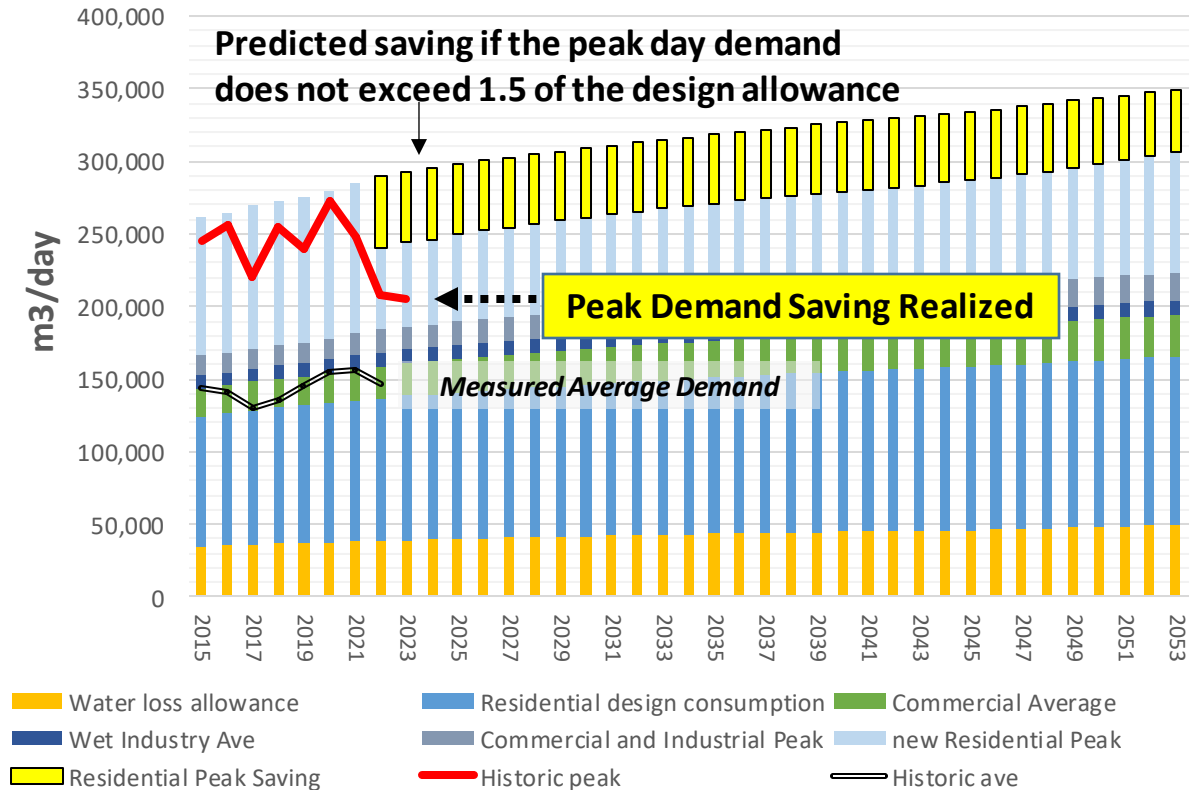
- new Residential Peak Flow
- Commercial & Industrial Peak Flow
- Peak Demand Saving
- Historic peak
- Historic ave

Savings equal to the production capacity of 9 medium sized pump stations (500 m³/hour or 139 L/s)

Realized impact on peak day demand

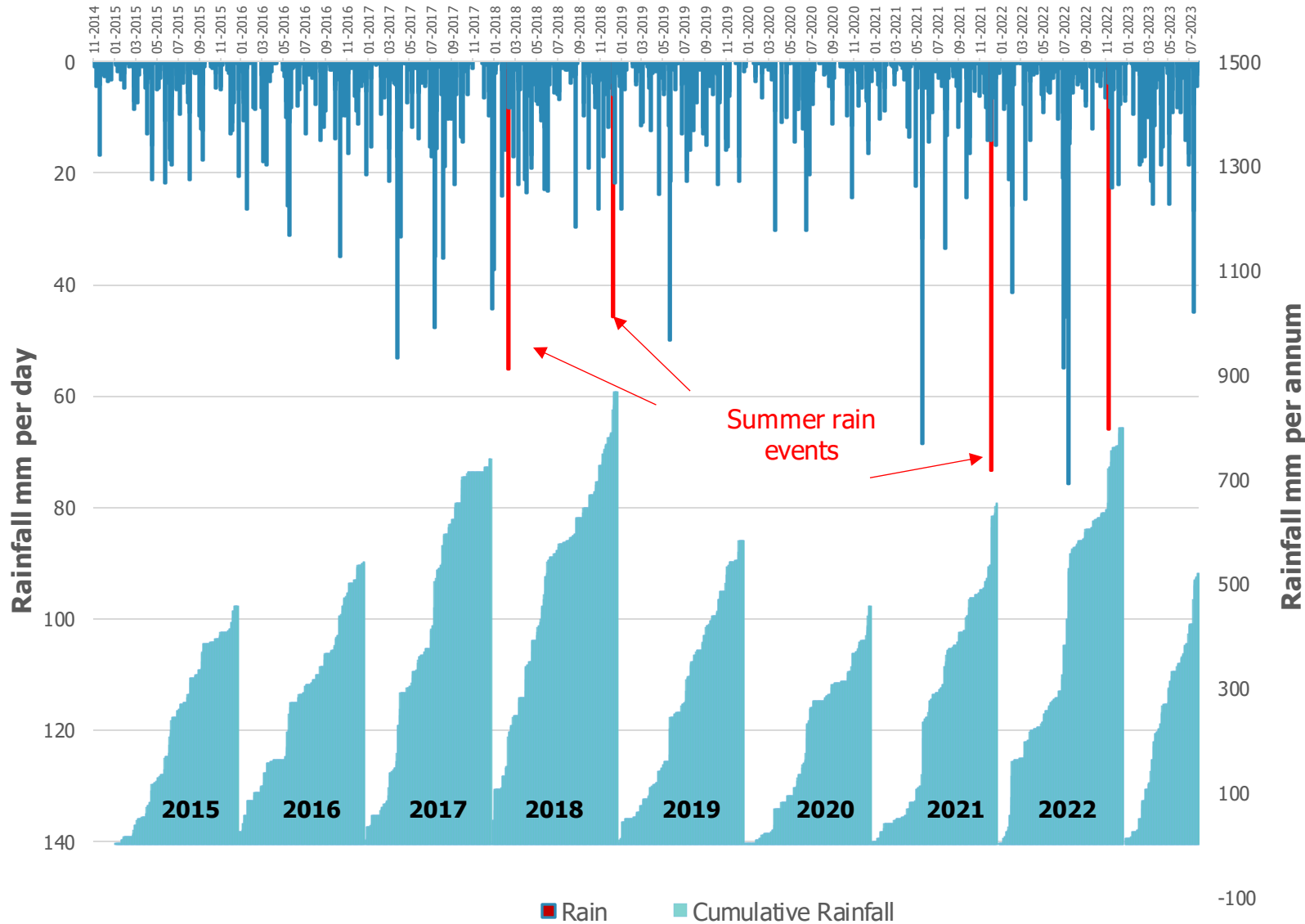
Peak Day Demand

Water Supply Zones	Historic Peak (Feb 2020)	FY22 Peak	FY23 Peak	Saving (Historic Peak minus FY23 Peak)	FY23 Peak % Change from Historic
	m³ per day				
Brooklands/Kaingā	2,414	1,443	1,752	661	-27%
Central	104,166	83,756	81,531	22,635	-22%
Ferrymead	21,298	17,261	15,887	5,411	-25%
North West	57,207	37,921	39,268	17,939	-31%
Parklands	18,533	14,286	11,890	6,643	-36%
Rawhiti	21,919	16,920	14,626	7,293	-33%
Riccarton	5,845	6,021	6,379	-533	-9%
West	48,860	38,276	37,611	11,248	-23%
TOTAL	273,268	207,810	204,805	68,443	-25%



Saving = 12% of water take consent volume

Impact of rain on garden watering



Rain contribution acknowledged but overall savings cannot be credited to rain only

Similar total rainfall than previous years with high demand

Fewer antecedent dry days in FY2022 and FY2023

Benefits

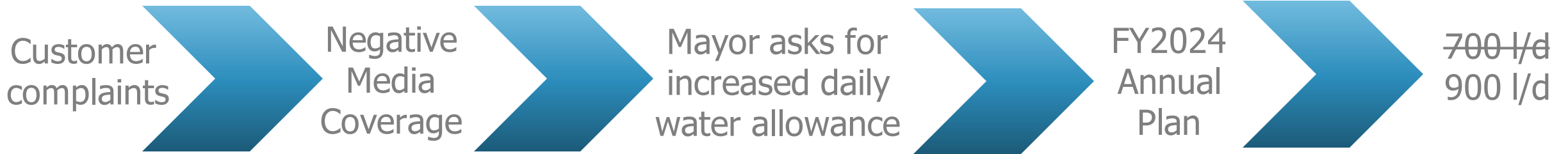
NOW

- Avoided water restrictions despite capital works
- Reduced pumping energy costs
- Reduced greenhouse gas emissions

ENVISIONED

- Capital savings of \$150 million because fewer wells (25) and pump stations (8) to meet future demand growth
- Opportunities to rationalize water supply system by reducing the number of pump stations

Effect of an increased allowance

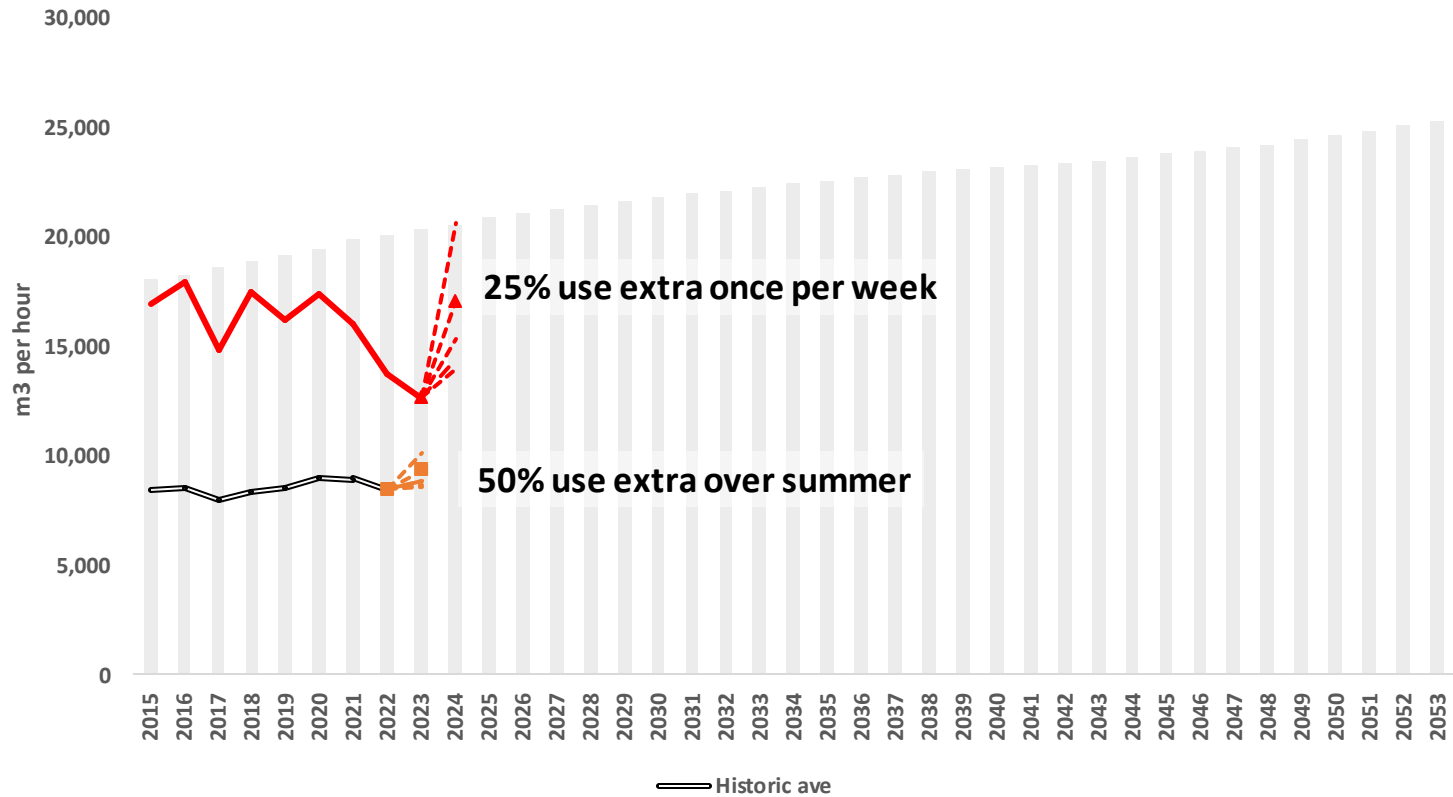


	Annual Plan Submissions	Council Votes
Support maintaining the daily allowance of 700 litres per day	190 (50%)	8
Support increasing the daily allowance to 900 litres per day	191 (51%)	8 1 Councillor Abstains

Effect of an increased allowance

Jul 2023 → increased daily residential water allowance to 900 litres per day

Nov 2023 Dec 2023 Jan 2024 Feb 2024 Mar 2024 → ?



Acknowledgements

Christchurch City Council Three Waters managers and staff over past 30 years

Christchurch City Council Digital Business Intelligence & Analytics Team for data

Christchurch City Council Strategy, Policy and Resilience Team (Diane Shelander) for history

Questions?