

Tuesday 13 February 2024

OIA IRO-573

Name: [REDACTED]

Email: [REDACTED]@parliament.govt.nz

Kia ora [REDACTED]

Official information request regarding water usage and loss.

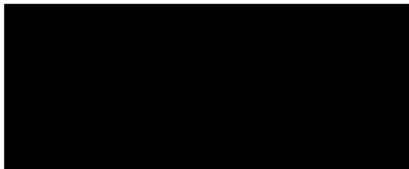
Thank you for your official information request dated Wednesday 10 January 2024.

We have considered your request in accordance with the Local Government Official Information and Meetings Act 1987 (The Act) and determined that we are able to grant your request in full.

The information you have requested is in the appendix to this letter.

You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Ngā mihi,



[REDACTED]
Chief Executive

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Our water, our future.

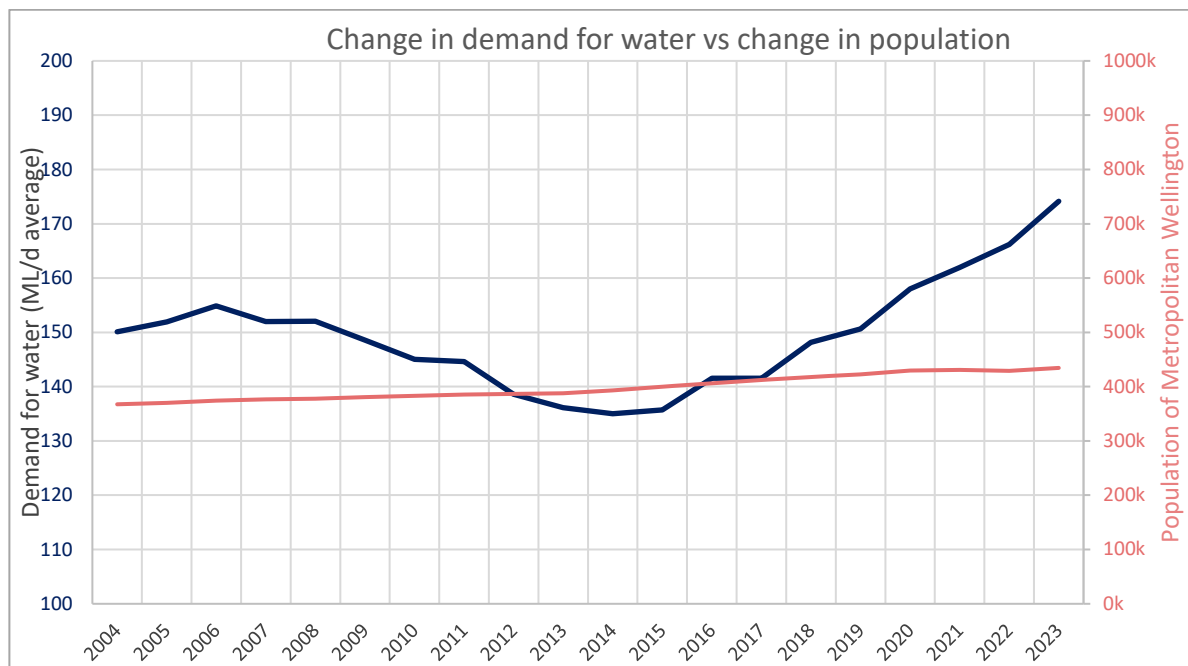
Appendix

Information requested being answered under the Act.

1. The level of total water consumption per capita for each year from 2010 (earlier if you can) until the current year in each of the 5 Council jurisdictions managed by Wellington Water.
2. The calculation methodology and assumptions used to determine normal usage and therefore the proportion of unaccounted for water loss (leakage, flushing, fire use etc)
3. The therefore assumed level of water loss / leakage and how that has changed over the period above.
4. The number of leaks and leaks repaired over time. (are you getting on top of the issue?)

Water consumption per capita (item 1)

Water consumption for the Wellington metropolitan region is provided in the graph below, together with population information:



The following table provides the information available for the South Wairarapa District:

June Year	Population	Total demand (M3)	Litres per person per day
2010	5970	1,330,623	611
2011	6020	1,561,538	711
2012	6000	1,353,666	616
2013	6130	1,283,521	574
2014	6250	1,303,554	571
2015	6390	1,428,813	613
2016	6530	1,549,581	648
2017	6690	1,287,922	527
2018	6930	1,497,936	592
2019	7080	1,467,894	568
2020	7310	1,568,777	586
2021	7400	1,739,923	644
2022	7490	1,596,821	584
2023	7580	1,662,685	601

Water Loss calculation methodology and assumptions (item 2)

Prior to the 2022/23 financial year we used a water balance methodology to determine water loss, that aligns with the WaterNZ Water Loss Guidelines. This approach uses a range of inputs including metered commercial consumption and a small sample of manually read residential meters that provide an estimate of domestic consumption with high confidence intervals. These inputs, together with other inputs of varying confidence intervals in turn produced a result with high confidence intervals (i.e. high uncertainty in the accuracy of the results derived).

In FY2022/23 we started reporting water loss using an improved methodology that also aligns with the WaterNZ Water Loss Guidelines, using the minimum night flow method.

Why the methodology changed and Results (Item 3)

In 2019 we initiated a review of the water loss methodology, comparing it with international best practice for water supplies that do not yet have full domestic metering (see report here <https://woogle.wellingtonwater.co.nz/site/bimp/fss/Sustainable%20Water%20Supply%20-Connect%20Water%20-%20Representative%20Domestic%20Metering%20-%20Final%20Report.pdf#search=domestic%20metering>). This work identified the following three broad options to improve the estimates for unmetered domestic consumption, and in turn network leakage:

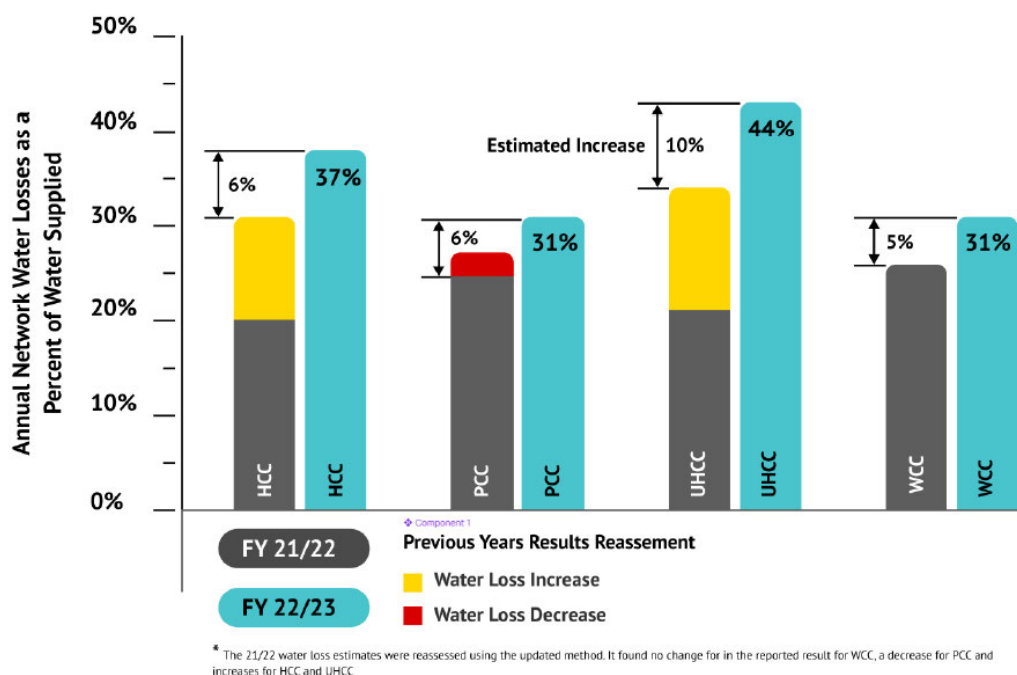
1. Installing more domestic meters (individual household monitors) to provide an appropriate representative sample

2. Implementing full domestic metering (individual household monitors) across the region
3. Installing a number of Small Area Monitors (SAMs)

Option 3 was recommended as a pragmatic means of improving consumption estimates for a reasonable cost, and was subsequently progressed through installation.

The data from the SAMs has allowed us to improve the calculation methodology since the 2022/23 financial year (i.e. reducing the confidence intervals in the result) using the minimum night flow approach (also referenced in the WaterNZ Waterloss Guidelines). The attached documents provide the background for this and some FAQs.

The results of this new methodology for the 2022/23 Financial Year, compared to the same methodology applied to the previous year, is demonstrated below. Note that there has been a marked increase in the leakage year-on-year in all metropolitan councils.



Unfortunately two methodologies have therefore been applied over the period requested, and it is not possible to retrospectively apply the improved methodology to the old data. Because of this, it is may be more useful to look at the overall demand in Wellington (including leakage) for water over the past two decades. The graph provided for item 1 illustrates that demand (and production of water) fell over the period of 2004-2015, while population in the region was increasing. Over the previous decade, we have seen demand for water increase dramatically, and this is primarily a function of increased leakage.

Leaks occurring and repaired (Item 4)

In terms of leaks repaired, we have seen a decrease in the number of leaks repaired over the past few years. Data issues make it difficult to ascertain the number of leaks repaired prior to 2020.

Seasonal patterns consistently reveal that the peak occurrence of Customer Service Requests (CSRs) occurs during the drier months, mainly due to an increase in leak reports. This can be attributed to customers being more observant of leaks during these periods. The aging state of our networks, increasingly prone to failures and requiring more frequent repairs, contributes to this trend. We anticipate this pattern to persist in the upcoming summer months.

Our proactive leak detection approach has been pivotal in identifying leak locations, particularly in areas with substantial water loss. Focusing strategically on high-potential conservation areas has optimized water-saving measures. Despite these efforts, the challenge persists due to a significant CSR volume, proactive leak detection activities, and the level of funding in the council preferred budget.

This challenge has resulted in a backlog of open CSRs, predominantly non-urgent leaks. The current indicative investment level suggests a potential exponential increase in non-urgent works. Improved funding can significantly impact this trend, though the extent remains undetermined until interim data supports the assessment.

Note that we have recently received a report that shows that over the same time period, since August 2020, the cost of delivering a representative job on our water network has risen 63%.

Month	Leaks reported	Leaks fixed	Total leak backlog
July 2020	616	426	265
August 2020	723	624	364
September 2020	760	746	378
October 2020	801	781	398
November 2020	919	828	489
December 2020	914	816	587
January 2021	930	707	810
February 2021	956	783	983
March 2021	1032	1012	1003
April 2021	885	820	1069
May 2021	760	780	1048
June 2021	581	759	870
July 2021	563	737	697
August 2021	699	785	611
September 2021	683	716	578
October 2021	712	572	718
November 2021	834	729	823
December 2021	616	613	826
January 2022	839	635	1030
February 2022	746	583	1193
March 2022	749	818	1124
April 2022	628	594	1159

May 2022	597	816	938
June 2022	430	535	833
July 2022	549	622	753
August 2022	631	618	766
September 2022	831	629	967
October 2022	742	595	1111
November 2022	879	654	1333
December 2022	978	523	1788
January 2023	961	583	2166
February 2023	970	805	2329
March 2023	1002	807	2519
April 2023	697	601	2615
May 2023	802	888	2530
June 2023	787	839	2474
July 2023	707	769	2411
August 2023	750	813	2349
September 2023	744	680	2411
October 2023	792	578	2623
November 2023	902	746	2775
December 2023	925	528	3170
January 2024	1599*	571	4197*

*Likely includes duplicate leak reports that are yet to be triaged and consolidated. Usually duplicates make up around 40% of total job volume, meaning we can expect upwards of 950 legitimate leaks reported in January (up to the 29th), and a backlog upwards of 3,550 leaks.

