

Appendix 1 to Company Update Report: *Increasing demand for drinking water in Wellington and implications for summer*

Purpose of this update

1. To highlight the steadily increasing demand for water in the Wellington metropolitan area; the resulting increase in probability of significant watering supply restrictions in summer; and that the interventions needed to mitigate this risk remain unfunded.

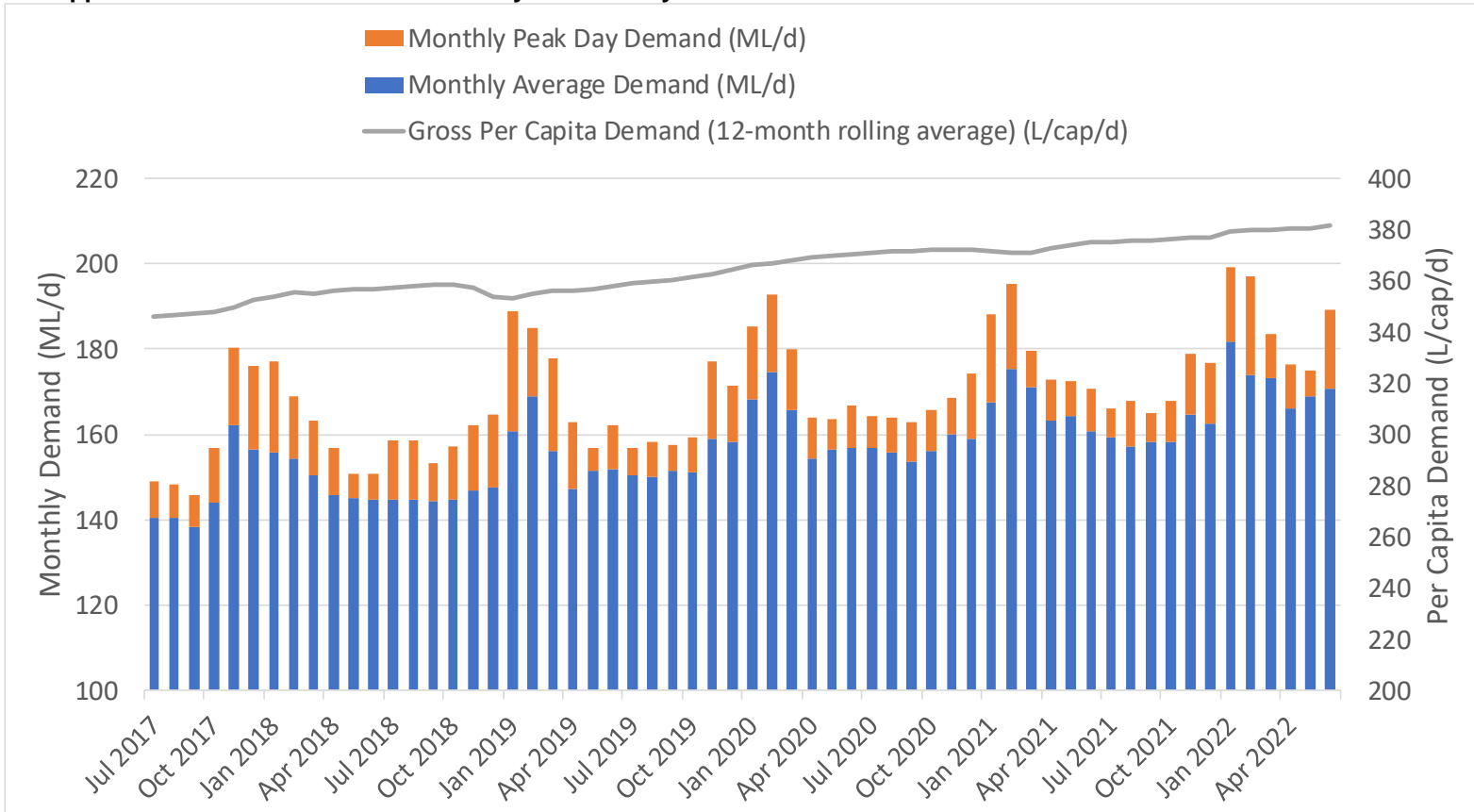
Background

2. Customers expect to be able to access sufficient quantities of safe and healthy water throughout the year. The supply network in the Wellington metropolitan area is constrained in meeting this expectation by treatment plant output capacity (for daily peak demand), and the available storage in the Macaskill Lakes and the Waiwhetu aquifer (for extended dry weather conditions).
3. It is therefore necessary to manage demand in the peak summer periods using watering restrictions. It is also important that we sustain an ongoing programme of leakage management to control the inevitable natural rate of rise of leaks from our aging infrastructure. The community does not like watering restrictions, and rightly holds us to account for long leak run-times, particularly in summer.
4. Per Capita Demand (PCD) for drinking water has shown a sustained increase since 2017 and a general increase since around 2014. This trend is unprecedented in the available 32-year record.
5. Gross demand (includes commercial usage and leakage) continued to increase over FY2021/22 (appendix 1), and is now at around 383L/p/d. This exceeds our planning criteria of 374L/p/d for the 2021-31 investment period. The latest population projection information from SensePartners has also increased compared to previous planning information. Both of these factors mean that major supply/demand interventions are now required earlier than planned.
6. Data on night flows and the number of open burst/leak service requests indicate that much of the gross PCD increase is driven by increasing system leakage from both the public network and within private properties (appendix 2). Our recently installed small area monitors now allow better estimates of the public/private leakage split and suggests private property leakage is a significant contributing factor in addition to the public network issues we are facing.
7. Investigation and feasibility work for major supply and demand interventions (additional source capacity and residential metering) is progressing. However, delivery of metering is only partially funded in 2021-31 LTPs (HCC and PCC only), while source/supply capacity expansion sits outside the 10-year planning window in GWRC's LTP.

Discussion

8. In our March 2022 company update we highlighted the increasing risk of more frequent, severe and extended water supply restrictions in summer and the need for careful management of the issue as water reform progresses. The trend in increasing demand has continued, with gross per capita demand now exceeding our planning criteria at around 383L/p/d (12 month rolling average, see appendix 3).
9. This means the likelihood that a sprinkler ban will not be sufficient to maintain demand within supply capacity in the coming summers has increased, raising the prospect of more severe and extended restrictions (appendix 4). A total residential outdoor water use ban, application of guidelines for limiting internal usage within private properties and breaching water take consents are potential outcomes unless summer weather conditions are unusually favourable (i.e. wet).
10. The supply-demand balance is expected to further deteriorate unless a rapid reduction in demand is achieved. The main short-term intervention available that is largely within Wellington Water's ability to directly control is reduction in leakage within the public network. We also have some limited influence on private property leakage where this is identified as part of public network leak detection. However, a sustained increase in current operational funding levels is required to achieve the reduction in system leakage required, to ensure continuity of ongoing proactive leak detection and reactive repairs (appendix 5).
11. Our capacity to locate and repair leaks continues to be limited by the current labour market and supplier/contractor resourcing constraints.
12. Current work underway to increase the output capacity of the Te Marua water treatment plant is expected to be completed by 2025 and will provide increased security against high daily peak flow events but will not provide increased security against an extended dry period.
13. A higher PCD limit will be adopted for the 2024 investment period, meaning that a major supply/demand intervention (additional source capacity or residential metering) is imminent. However, the earliest practicable timing for additional source capacity implementation is likely to be around 2029/30, and the current Level 1 cost estimate for implementation is over \$800M.
14. Updated investment advice will be included in the Asset Management Plan for Entity C as water reform transition progresses, allowing for both major supply interventions.
15. Other demand management measures are being initiated such as a non-residential water efficiency programme as part of our Sustainable Water Supply and Demand Programme. However, these will take time to show significant benefit through demand reduction and the extent of these initiatives is limited by available budgets.
16. A Drought Management Plan is nearing completion, and includes guidelines for internal usage at residential properties in high water restriction levels that are also available on our website. These guidelines allow us to communicate with the public around what service standard can be expected should drought conditions eventuate.

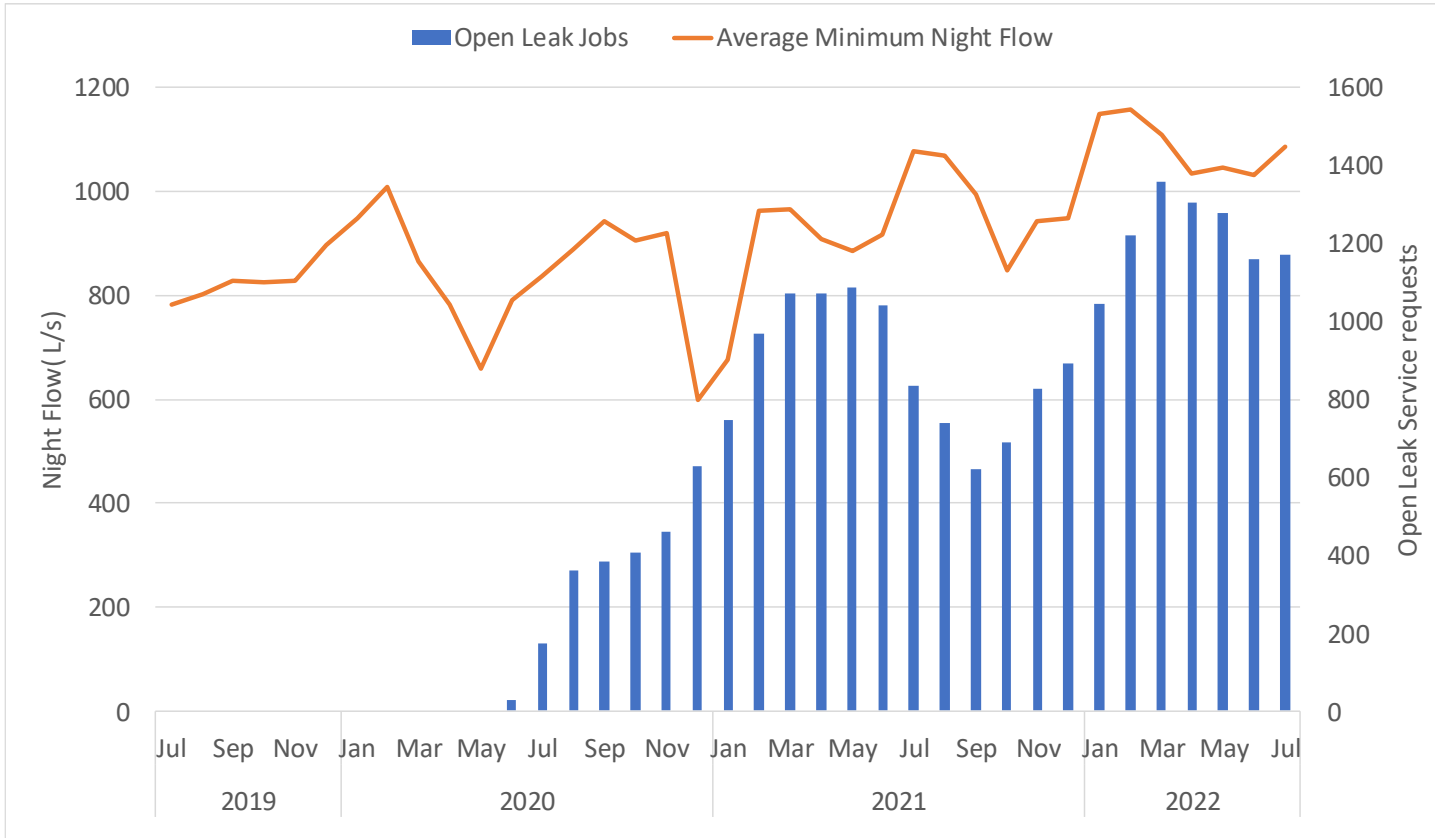
Appendix 1 - Water Demand Trends July 2017 to July 2022



This graph shows that in the five years from 2017-22, the twelve-month rolling average gross per capita demand (grey line) has increased from less than 350 l/p/d, to above 380 l/p/d (blue line).

Monthly average (blue bars) and peak day demand (blue + orange bars) have exhibited a similar rising trend. January 2022 saw the highest peak day demand since 2008.

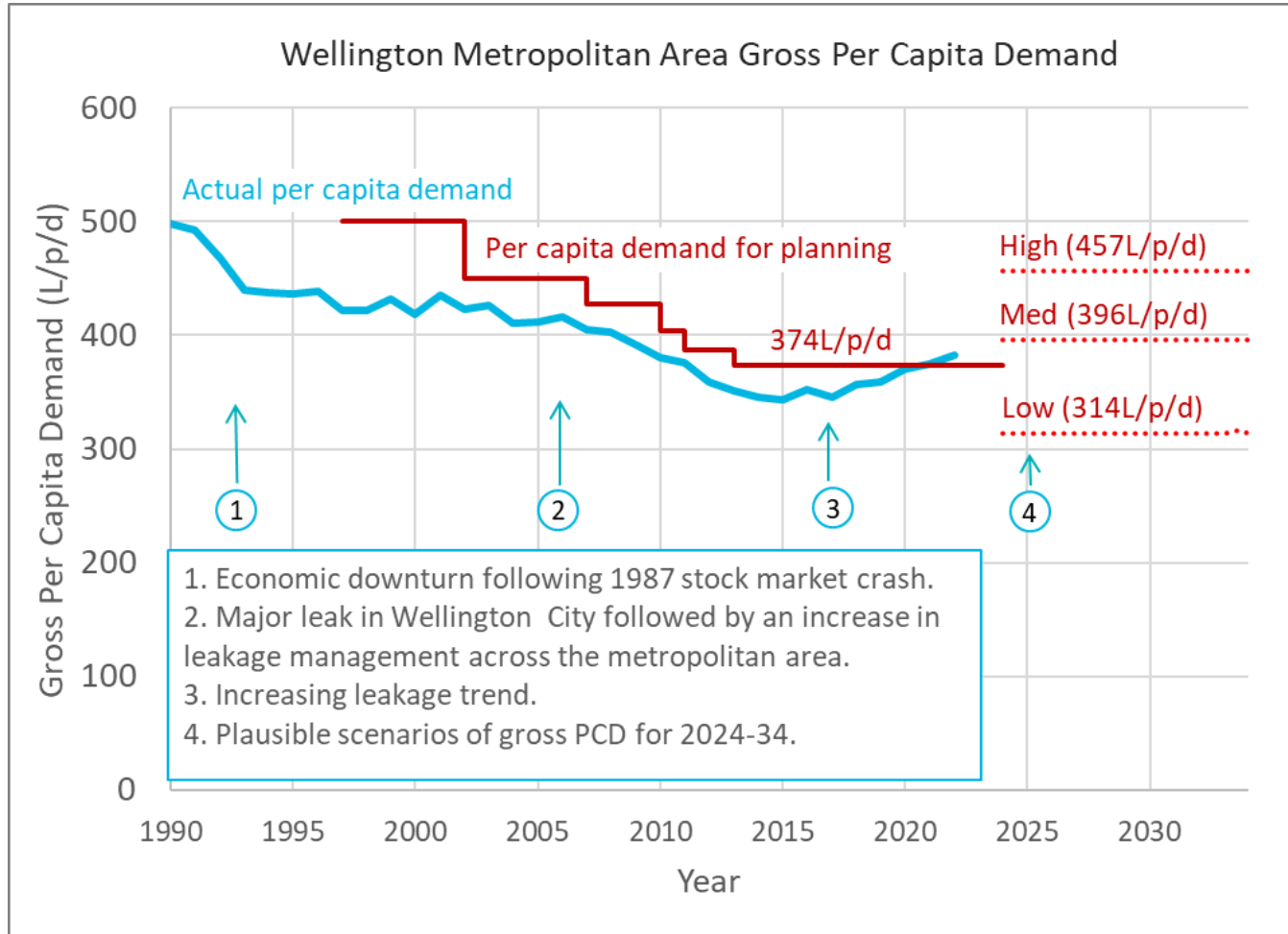
Appendix 2 - Night flows and open burst/leak service requests trends



This graph shows that minimum night flows (orange line) have been rising in concert with demand, and that the backlog of burst/leak service requests (blue bars) has also been rising since our Maximo system was commissioned in mid-2020.

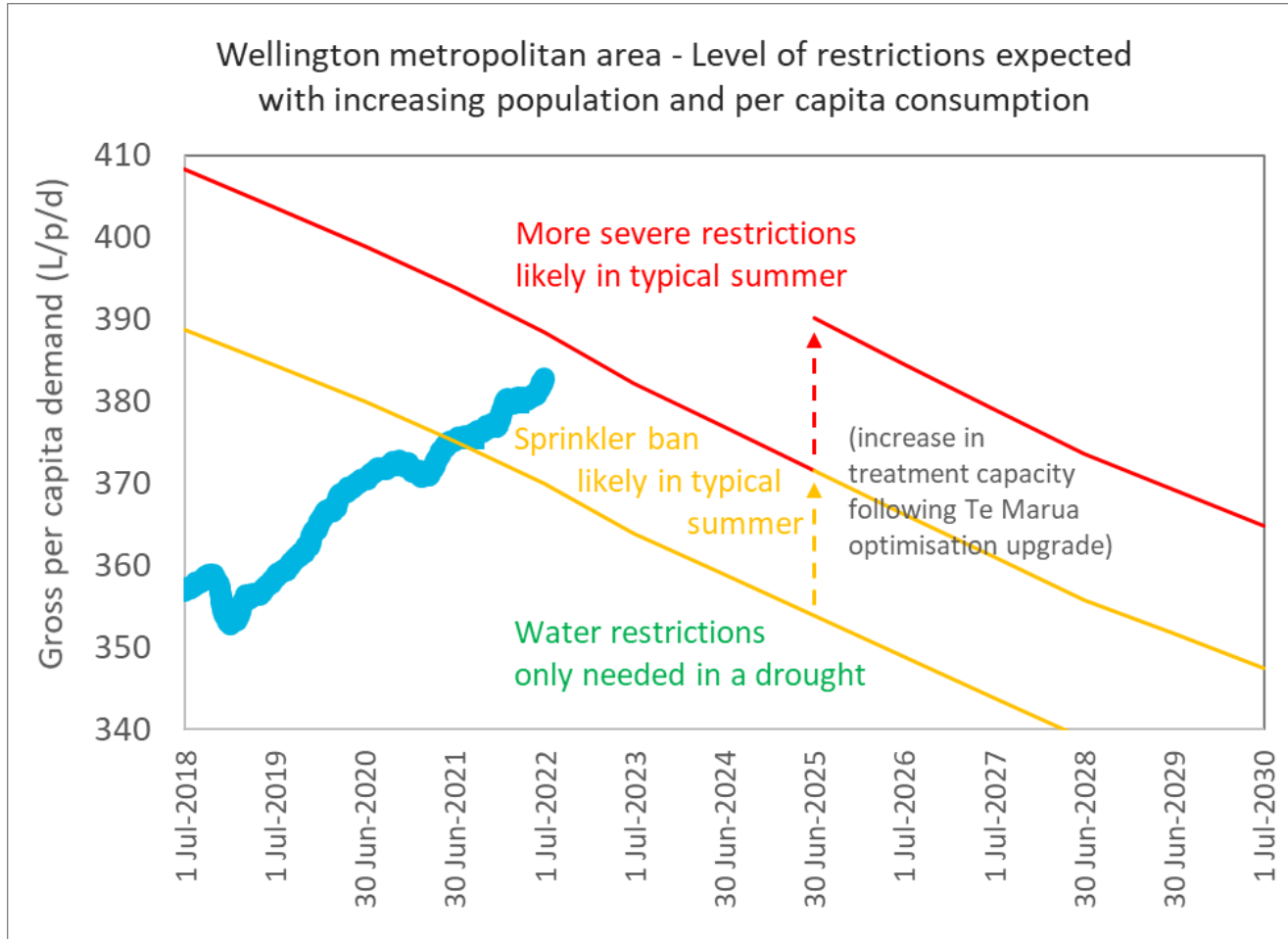
This indicates that most of the growth in demand can be attributed to rising water losses from network and private leaks.

Appendix 3 - Supply/demand intervention planning



This graph shows per capita demand used for planning purposes to inform councils of when major supply/demand interventions are required

Appendix 4 - Expected Impact on Summer Water Restrictions



This graph shows per capita consumption (blue line) is climbing steadily into zones of increased risk of supply shortfall requiring more severe and extended watering restrictions in summer. The steeper the climb, the sooner we are likely to see severe restrictions – unless supply/demand interventions are implemented

Appendix 5 - Managing leakage overview

